Blacktown City Council
Growing with Pride

PCU031173

File No: RZ-10-2394

27 February 2012

Mr Peter Goth
Regional Director
Sydney West Region
Department of Planning & Infrastructure
GPO Box 39
Sydney 2001

Department of Planning
Received
2 9 FEB 2012
Scanning Room

Dear Mr Goth,

Planning Proposal for Land in Richmond Road, Colebee (Amendment No 229 to Blacktown LEP 1988)

I refer to the email from Mr Stephen Gardiner dated 8 December 2011 regarding the Planning Proposal on the subject land.

Please find enclosed a paper copy of the Planning Proposal and a CD copy for your information. I trust the revised Planning Proposal addresses the matters raised by the Department of Planning & Infrastructure.

Should you require any further information regarding this matter, please contact Council's Strategic Planner, Zara Tai on 9839 6237.

Yours faithfully,

Fiona McDermott
Team Leader- Release Areas

Enc:

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799 Richmond Road, Marsden Park

Mixed Use Centre, Riparian Corridor and Drainage Infrastructure Rezoning

Planning Proposal

Prepared on behalf of

Smith Family Trust and Legacy Property

Updated December 2011

MECONE

Project Director

Ben Hendriks

Contributor

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Signed*

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Date:

* This document is for **discussion purposes only** unless signed and dated by the persons identified. This document has been reviewed by the Project Director.

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1 Objectives and Intended Outcomes

1.1 Objectives

This planning proposal relates to land at 799 Richmond Road, Marsden Park as shown in Figure 1. The overall intent of this Planning Proposal is amend the zoning of land under *Blacktown Local Environmental Plan 1988* (BLEP 1988) at the subject site to:

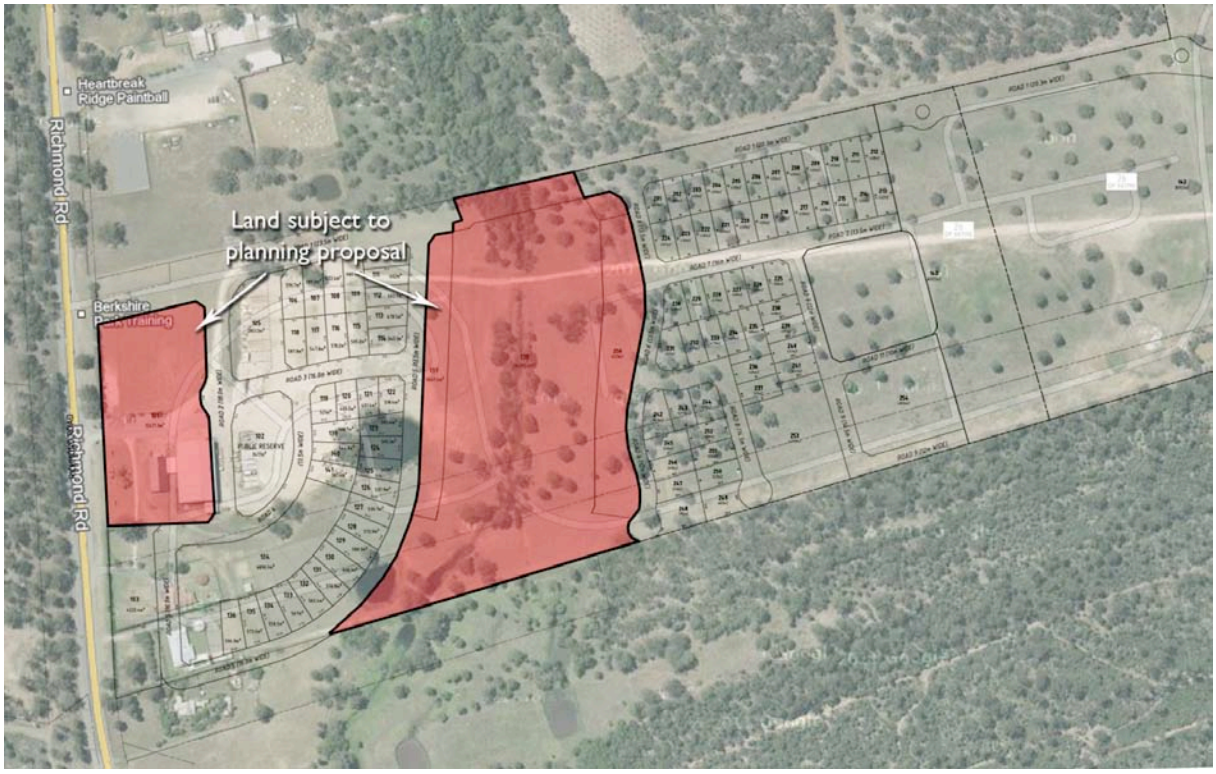
(a) permit retail and commercial uses, including a supermarket and other commercial uses for a neighbourhood retail and commercial centre on a small part of the site, and

(b) to provide a more appropriate zoning regime for the Bell's Creek corridor which better reflects the zoning for the corridor through the North West Growth Centre and provides space for drainage infrastructure and residential development.

The site is currently the subject of a number of development approvals for its urban development. The development approvals provide space for and reflect this planning proposal. These include:

- DA-10-1631 for 37 residential allotments, street network, drainage and 4 superlots including a lot that can be used for the mixed use area in the future.
- DA-10-2842 for 71 residential lots, street, street network and drainage infrastructure.

Figure 1. The site showing lands subject to this planning proposal



The specific objectives of the Planning Proposal in regard to the two distinct components being the mixed use area and the Bells Creek Corridor are to:

Mixed use Area:

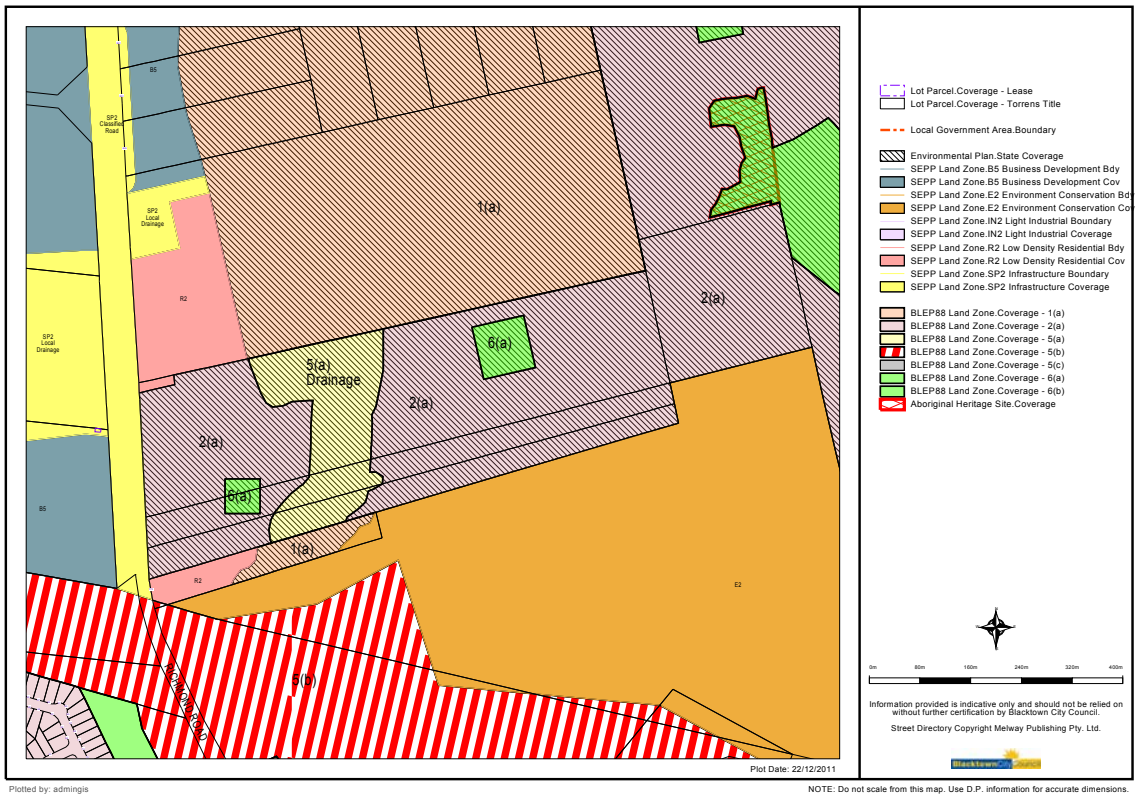
- address the lack of retail/commercial facilities in the form of a neighbourhood village centre that is not prevalent in the Colebee Release Area;
- provide employment opportunities;
- allow for the development of a mixed use centre to incorporate retail and commercial uses to serve as a neighbourhood hub for the Stage 1 release.

Bells Creek corridor:

- Provides a more appropriate zoning regime for the land;
- address the 1 in 100 year flood extent in the corridor;
- address the ecological values of the corridor;
- need to provide drainage infrastructure servicing the development;
- provide a planning regime for the corridor that is consistent with the approach to zoning of the Bells Creek corridor under the Growth Centre SEPP; and
- maintain riparian corridor in single ownership to provide better environmental/ecological outcomes.

The current zoning of the site is indicated in **Figure 2**

Figure 2. Current zoning map



1.2 Intended Outcomes

1.2.1 Mixed Use Centre

Mixed use centre concept

The mixed use concept is to provide a high quality mixed use village centre based on a walkable catchment to serve the general needs of the residential area in the Colebee Release Area. By allowing this rezoning, it will create a well-utilised social and domestic hub. It is envisaged that the mixed-use super lot will contain:

- ground level commercial and retail centre with supermarket and small centre services;
- commercial tenancies at first level;
- 152 car parking spaces and ancillary services;
- a focus toward the adjacent park with a small civic square defined by the surrounding shops and car park; and
- no access by way of Richmond Road.

Table 1 provides an indicative breakdown of the proposed uses in the concept:

Table 1. Proposed concept land uses

Category	GLA (sq.m)	% of Total
Supermarket	1,500	36.0%
Specialty Stores	1,485	35.8%
Commercial	1,165	28.1%

Site Selection

The site is generally rectangular in shape, and is bounded by Richmond Road to the West, the Stage 1 proposed collector road to the north, and Stage 1 proposed local roads to the south and east. The site has an area of 12,417.30 m^2.

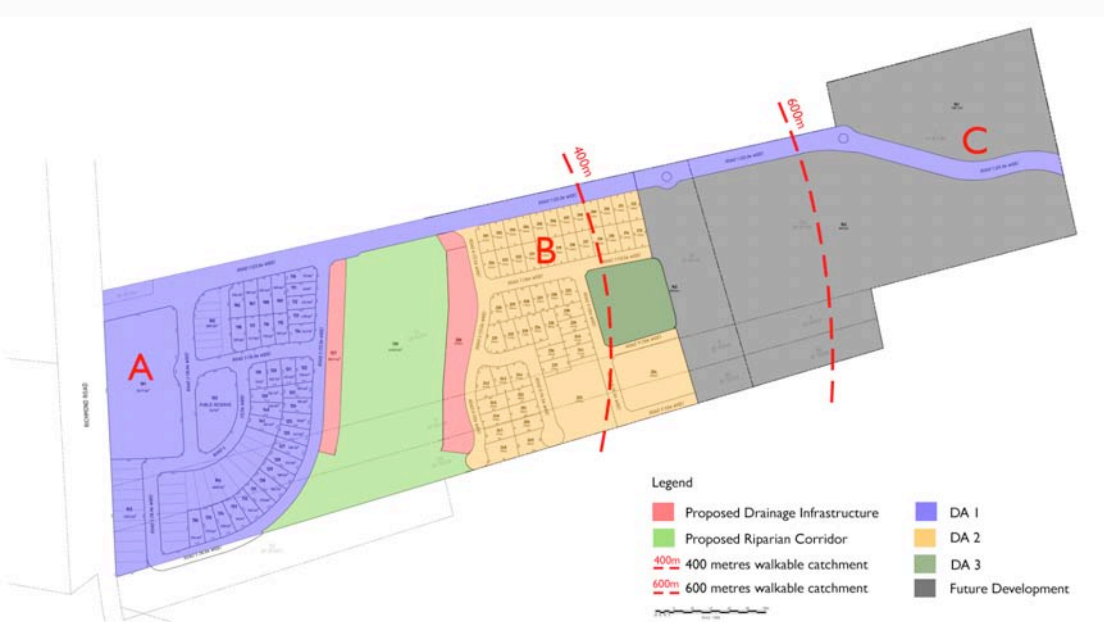
A number of sites were considered for the location of the proposed mixed use centre. These included the following locations as identified on **Figure 3**:

A) further east into the site;

B) in the centre of the release area between the proposed neighbourhood park and Bell's Creek; and

C) along the boundary of Richmond Road.

Figure 3. Mixed Use Centre Location Options



The preferred location along the boundary of Richmond Road, which is being proposed in this report was considered to be the most appropriate site for the mixed use centre because:

- It would allow residents to access the centre on their way in or out of the development without a major detour.
- Placing the centre in further east would mean heavy vehicles having to pass through residential neighbourhoods. This would detract from the residential amenity of these areas.
- Retail centres are best developed over a single level with simple pedestrian access and car parking. An undulating site (as the other potential locations are) do not maximise shopper convenience and accessibility, particularly for the less mobile and elderly if they walk to the site.
- Hilltop locations are better suited to residential uses as compared with retail developments where design and location is driven, in the most part, by functionality and not views and amenity.

Refer to **Table 2** below for options analysis used to determine best location of the mixed use area and further justification.

Table 2. Location Options Analysis

Criteria	Assessment	Best Location
Accessibility of Centre	Options B and C while being located closer to the centre of the release area would likely result in less patronage as option A being adjacent to the main entrance to the development site would capture residents passing as they enter/exist the development. For this reason option A would accessible to 100% of	A

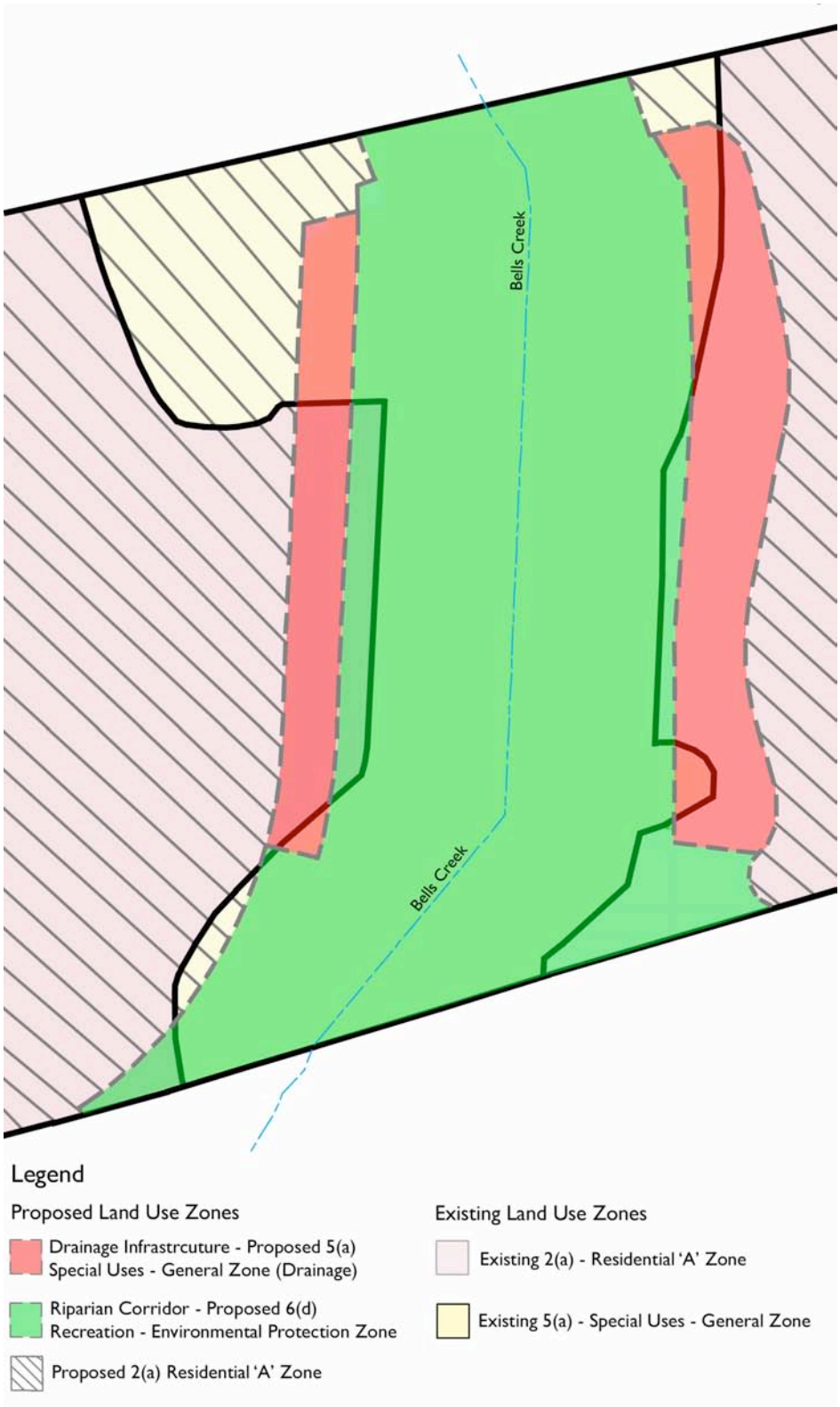
Criteria	Assessment	Best Location
	future residents while options B and C would service a lower proportion. The proposed location is within a 600m walkable catchment as defined by the Department of Planning and Infrastructure.	
Residential Amenity	Heavy vehicles would have to pass through residential areas enroute to locations B and C while the location of option A would minimise heavy vehicle movements past residential areas. Option A would also result in a poor level of amenity if developed for residential uses being on the intersection of Richmond Road and the Collector Road.	A
Sustainable Travel Behaviour	Options B and C would require residents to drive to the internal location while option A would allow residents to access the centre on their way in or out of the development without a major detour.	A
Topography	Options B and C have moderate to steep slopes. Option A is on a flat site and provides the best option for disabled access.	A
Urban Design	Options B and C would clash with the predominant residential nature of these areas. Option A is located on the intersection of two major roads and therefore would not have a negative impact.	A

It should be noted that the proposed mixed use development is oriented inwards site with no direct main road access and therefore is not expected to attract significant passing trade from Richmond Road.

1.2.2 Bells Creek Corridor rezoning

The Bells Creek corridor, as identified in **Figure 4**, is proposed to contain a 60m wide riparian corridor as well as drainage infrastructure. Part of the corridor currently zoned 5(a) drainage (although approved for residential uses with a zone boundary adjustment) is proposed to be rezoned to 2(a) Residential zone.

Figure 4. Riparian Corridor and drainage infrastructure lands



The proposed rezoning will accurately define the land into three specific land use zones as provided in Table 3 below.

Table 3. Proposed land use zones and areas

Land Use Zone	East of Creek	West of Creek	Total
Existing 5(a) Drainage Area	17,598m2	23,285m2	40,833m2
Proposed Riparian Corridor - 6(d) Recreation – Environmental Protection Zone	16,602m2	16,798m2	33,397m2
Proposed Drainage Infrastructure – 5(a) Special Uses – General Zone	6,629m2	3,766m2	10,395m2
Proposed Residential 2(a) (currently 5(a) Drainage)	0m2	11,471 sq.m	11,471 sq.m

The riparian corridor is to be maintained in single ownership in order to ensure the environmental management outcomes are achieved. The proposed works for provision of drainage infrastructure and upgrade of the riparian corridor include:

Drainage Infrastructure

The surrounding land and proposed subdivision of internal roads will be graded to maintain fall towards Bell's Creek. Surface runoff will be collected via a piped drainage system, which will direct flows to a series of landscaped water quality and quantity treatment areas within the riparian corridor.

These drainage areas will be designed to attenuate and treat frequent low-flows for nutrients and pollutants in accordance with Council's water quality requirements, prior to controlled discharge to Bell's Creek.

Bells Creek Corridor

Bell's Creek bisects the site in a north south direction at its topographical low point. The existing creek line will be retained in its current location unaltered. The existing narrow strip of fringing significant vegetation lining the creek will be retained and protected. It should be noted that the surrounding land is currently grazed and has been previously substantially cleared in comparison to adjacent land holdings.

The corridor is proposed to be reshaped so as to confine flooding to within the 40m corridor from the top of bank on both sides of Bells Creek and to ensure that there is no increase in the 1 in 100 year flood levels upstream and downstream of the site. The reshaping is proposed to consist of minimal regrading (up to approximately 500mm of cut). This will be further refined at detailed design stage in order to maximise the retention of any existing vegetation.

The proposed upgrade works within the riparian corridor and key features of the works include:

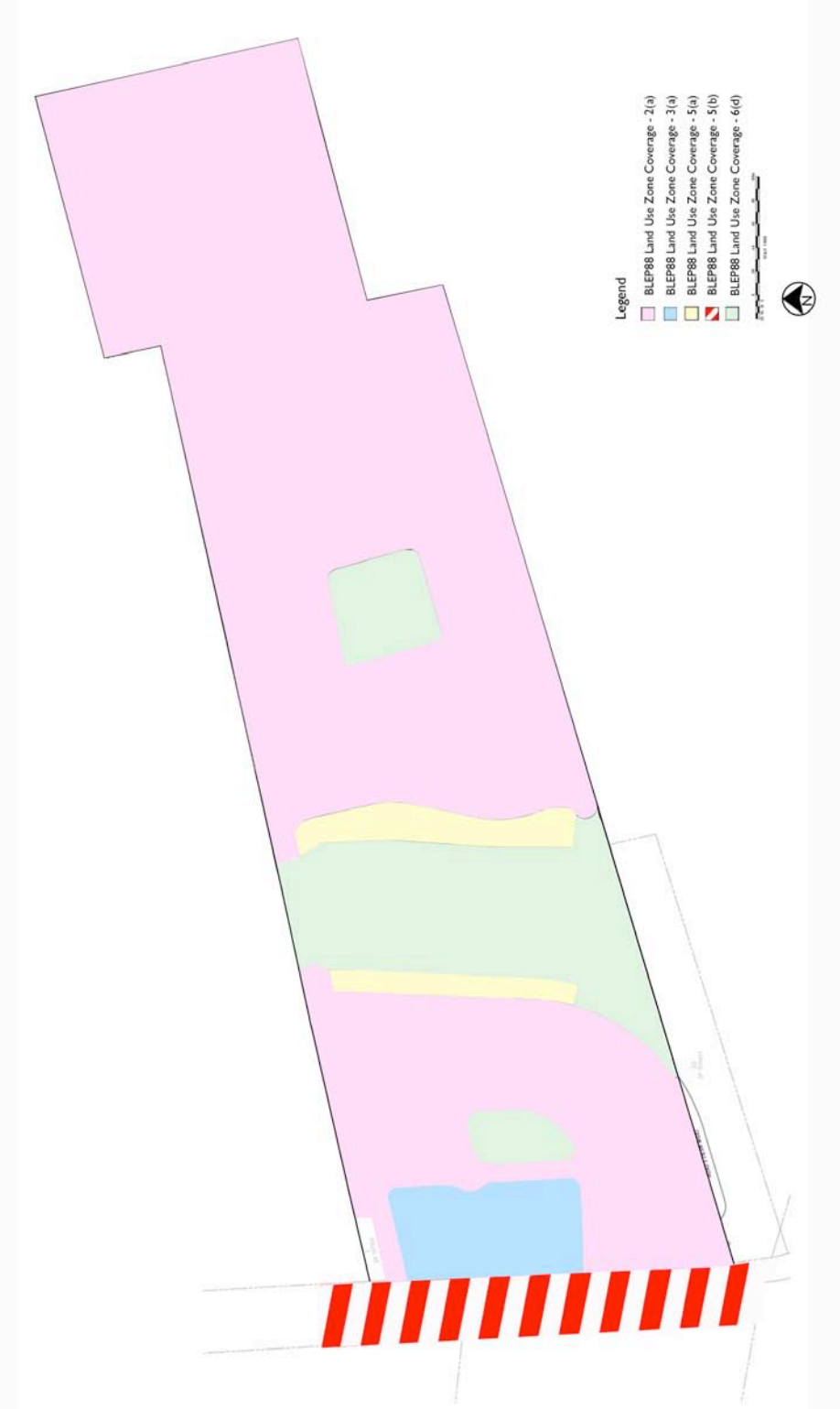
- retention of existing native trees;
- removal of under storey weed and grass;
- basic earthworks and blading off to remove existing historic spoil mounding;
- the existing creek and the 40m vegetated buffer either side of the creek line will for the most be contained within the 1 in 100 year flood event;

- inclusion of drainage management to protect water quality to Bell's Creek; and
- Design solutions to meet the requirements for Asset Protection Zone (APZ), including location of fringing roads and verges to limit fire transfer and the use of particular plant species selected to be low risk bushfire mitigation species.

2 Explanation of Provisions

The proposal is to amend the BLEP 1988 Map as indicted in **Figure 5**. No wording or site specific amendments are proposed.

Figure 5. Proposed rezoning map



The specific provisions of each zone proposed within BLEP 1988 are as follows:

Zone No 3 (a) (General Business Zone)

1 Objectives of zone

The objectives are:

(a) to encourage appropriate development which will result in the growth of major foci for accommodating the retail, commercial and social needs of the community,

(b) to encourage development and expansion of business activities which will contribute to the economic growth of, and the creation of employment opportunities within, the City of Blacktown,

(c) to encourage a wide range of retail, commercial and recreational facilities in the major business centres of Blacktown,

(d) to accommodate the establishment of retail, commercial and professional services for local residents in conveniently located business centres within the residential precincts where the scale and type of business development is compatible with the amenity of the surrounding areas, and

(e) by means of development control plans:

(i) to ensure that the size and function of both retail and commercial facilities are established within a preferred hierarchy of centres for the City of Blacktown,

(ii) to set aside specific areas within the zone for the provision of car parking, community uses, civic facilities, recreation areas and the like, and

(iii) to provide for a program of environmental improvements within each centre with a view towards improving traffic movement and shopper safety and comfort.

2 Development that does not require consent

Nil.

3 Development which requires consent

Any purpose other than a purpose included in Item 2 or 4 of the matter relating to this zone.

4 Prohibited

Amusement centres; brothels; caravan parks; extractive industries; gas holders; generating works; hazardous industries; hazardous storage establishments; industries (other than light industries); institutions; intensive lot feeding of livestock; junk yards; landscape supply businesses; liquid fuel depots; manufactured home estates; methadone dispensaries; mineral sand mines; mines; offensive industries; offensive storage establishments; professional consulting rooms; professional offices; roadside stalls; rural industries; rural worker's dwellings; sawmills; stock and sale yards; storage yards; timber yards.

Zone No 6 (d) (Recreation—Environmental Protection Zone)

1 Objectives of zone

The objectives are:

(a) to ensure the protection of environmentally sensitive land in the City of Blacktown, and

(b) to provide a buffer around areas of natural ecological significance, and

(c) to encourage the restoration of disturbed bushland areas, and

(d) to provide for passive recreational activities that are compatible with the land's environmental constraints.

2 Development that does not require consent

Nil.

3 Development which requires consent

Drains; public utility undertakings; recreation areas; utility installations (other than gas holders or generating works).

4 Prohibited

Any purpose other than a purpose included in Item 2 or 3 of the matter relating to this zone.

Zone No 5 (a) (Special Uses—General Zone)

1 Objectives of zone

The objectives are:

(a) to identify land which is currently used by public authorities, organisations and the council to provide certain community facilities and services,

(b) to identify land reserved for future acquisition by the council for a range of community facilities and services,

(c) to identify land which has been reserved at the request of certain public authorities for its future acquisition to provide a range of community facilities and services, and

(d) in relation to land marked "Corridor" on the map:

(i) to set aside land for the development of certain major long-term services and facilities, and special uses carried out by public authorities in an economic, safe and environmentally sensitive manner, and

(ii) to allow the identified land to be used for recreational or other purposes where that use does not conflict with the existing or likely future use of the land by public authorities.

2 Development that does not require consent

Nil.

3 Development which requires consent

The particular purpose indicated by black lettering on the map and purposes normally associated with and ancillary to the particular purpose indicated on the map; drains; public utility undertakings; recreation areas; roads; telecommunications facilities; utility installations (other than gas holders or generating works).

4 Prohibited

Any purpose other than a purpose included in Item 3 of the matter relating to this zone

Zone No 2 (a) (Residential "A" Zone)

1 Objectives of zone

The objectives are:

(a) to make general provision to set aside land to be used for the purpose of housing and associated facilities,

(b) to identify existing residential areas of a predominantly single dwelling character, and to maintain that character by prohibiting residential flat buildings,

(c) to enable sensitive infill development of other housing types if the infill development is of a bulk, scale and appearance that does not adversely impact on adjoining development or the amenity of the locality,

(d) to enable development for a variety of housing forms, including townhouses, villas, integrated housing, dual occupancies and the like, if such development does not interfere with the amenity of surrounding residential areas by way of overshadowing, overlooking, or loss of privacy,

(e) to allow people to carry out a reasonable range of activities from their homes, where such activities are not likely to adversely affect the living environment of neighbours, and

(f) to allow within the zone a range of non-residential uses which:

(i) are capable of visual integration with the surrounding environment,

(ii) either serve the needs of the surrounding population or the needs of the City of Blacktown without conflicting with the basic intent of the zone, and

(iii) do not place demands on public services beyond the level reasonably required for residential use.

2 Development that does not require consent

Nil.

3 Development which requires consent

Any purpose other than a purpose included in Item 2 or 4 of the matter relating to this zone.

4 Prohibited

Residential flat buildings; purposes listed in Schedule 1.

3 Justification

3.1 Section A - Need for the Planning Proposal

3.1.1 Is the planning proposal a result of any strategic study or report?

Mixed Use Area

The planning proposal is based on an economic study at **Appendix 1**, which was prepared to ascertain need for mixed use centre. In addition, the proposed rezoning is considered to be consistent with current strategic and statutory planning policy. The site, being released prior to the preparation of the North West Structure Plan, is essentially void of specific strategic direction with regard to the need for a neighbourhood centre, unlike the rest of the release areas, which have convenient neighbourhood centres based on walkable catchments.

The Department of Planning within the Growing and Renewing Centres part of the Metropolitan Plan 2036 define a walkable catchment as:

The walking catchment of a centre is the area from which people can be expected to walk to the centre's shops, services and public transport. It is generally measured

as a radius from a central point in the centre—often a public transport hub such as a train station or bus stop. The approximate walking catchment radius for each centre type should be refined for each centre through local planning which recognises local conditions.

For a centre of the size proposed a 400m-600m catchment is recommend by the Department of Planning.

It is evident that there is a need for the centre given the anticipated residential development that will occur in the area and development of the MPIP. Specifically, the need for centre is a result of the following, which is supported by an Economic Impact Assessment prepared by Duane Location IQ:

- The Colebee Release Area is a rapidly growing area that is likely to accommodate many young families;
- Young family markets have strong need and demand for a wide range of convenience facilities close to their homes, particularly with two parents working;
- The area will contain over 6,000 persons in longer term, with some 3,500 persons by 2016. This population level is more than large enough to support a neighbourhood centre anchored by a small supermarket;
- The closest existing facilities are at Plumpton, a round trip of over 8 km. This is a substantial and inconvenient distance to travel for essential convenience goods; and
- The MPIP centre will not contain a small supermarket.

Overall, the proposed Richmond Road development is well positioned to serve both the existing and future population in the immediate surrounding areas.

It is likely that residents within the North West Growth Corridor will in time be supplied with their own retail facilities. This includes identified centres at Marsden Park, including

the Town Centre. However, there is no identified Local Centre to serve the Colebee estate in the southern portion of this growth area.

The proposed Richmond Road site is ideally located at the entrance to the region, with walking accessibility for future residents of the Colebee estate."

Refer to **Appendix 1** for the Economic Impact Assessment.

Bells Creek Corridor

Currently, the proposal is not a result of any strategic study or report, however the proposed rezoning is considered to be consistent with Council's and the Department of Planning and Infrastructure (Sydney's Growth Centres) current policy for the zoning of riparian corridors. The rezoning of the subject land for drainage infrastructure purposes is required to ensure that adequate drainage is maintained to the site and surrounding area.

The land forms part of a wider regional drainage function. The proposed shape and extent of the area will not have an impact on the function of corridor or generate any adverse impacts. This is supported by detailed engineering design. Refer to **Appendix 2** for letter from Civil Engineer.

The proposal will have a significant community benefit ensuring that the drainage function of the corridor is maintained. In addition, the zone objectives, design and management of this section of the corridor will set a benchmark for the design and management of the entire corridor.

In relation to the zone for the riparian corridor, the proposal will ensure that environmental management objectives are reinforced in the corridor and have a positive impact on surrounding lands. This will also have wider environmental benefits to the community, given that the proposal is part of a greater creek and river system.

The proposed zone and future works will not have an adverse environmental impact and enhance the environmental and ecological value of the subject land. This is supported by the ecological assessment found at **Appendix 3**.

3.1.2 Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

Mixed Use Area

We acknowledge that Council is currently preparing a new comprehensive Local Environmental Plan, which we understand will be publicly exhibited early to mid 2012.

However, the best means of achieving the objectives of the proposal is to treat it independently of such a process given the public interest imperatives of providing a local neighbourhood centre to service local housing in an expeditious manner, as opposed to the delivery of such facilities being potentially delayed by including it in the consideration of the LEP for the whole LGA.

The administration of this proposal through the Gateway mechanism will best align the Stage 1 residential release under the current DA approval with the needs of those residents and will best promote sustainable transport and community cohesion.

Bells Creek Corridor

The planning proposal is the best means for ensuring a robust planning outcome for the subject lands. The proposal ensures that the relevant land use zone objectives are met. This process will also provide Council with an opportunity to consult with key

stakeholders and the community in order to achieve the best possible outcome in relation to:

- Maintaining the corridor for drainage purposes, which has a regional function; and
- Zoning the corridor appropriately to reinforce environmental management objectives.

The administration of this proposal through the Gateway mechanism will best align the Stage 1 and Stage 2 residential release under the current DAs along with the needs of the incoming residents.

3.1.3 Is there a net community benefit?

Mixed Use Area

The Department of Planning & Infrastructure (DP&I) have published a guide on preparing Planning Proposals. That guide includes a list of criteria that needs to be addressed in Planning Proposals to demonstrate that the NCBT has been considered.

Table 4. Net community benefit test

Evaluation Criteria	Response
Will the LEP be compatible with agreed State and regional strategic direction for development in the area (e.g. land release, strategic corridors, development within 800 metres of a transit node)?	The proposal has been assessed against the Metropolitan Strategy and Draft North West Subregional Strategy as provided in this report in Section 2.3.2.
Is the LEP located in a global/regional city, strategic centre or corridor nominated within the Metropolitan Strategy or other regional/subregional strategy?	The site for the proposed rezoning falls within the North West Growth Centre however does not fall within the structure plan or development control framework for this area. The Colebee Release area is administered by Blacktown City Council. This has been discussed in the following section of this report in section 3.2.1.
Is the LEP likely to create a precedent or create or change the expectation of the landowner or other landholders?	The proposed site falls within the Marsden Park Draft Structure Plan Area of the North West Growth Centre of Sydney. The North West Growth Centre is a planned residential development area in the Blacktown and Baulkham Hills municipalities, with the Marsden Park precinct located on either side of Richmond Road to the north of the M7 Orbital. There are a number of proposed Town Centres and Local Centres throughout the Marsden Park Structure Plan, but no Local Centre has been designated within the Colebee release area. The Economic Impact Assessment produced by Duane Location IQ for the rezoning clearly showed that there is demand for a Local Centre at Colebee, similar to other Local Centres designated throughout other parts of the Marsden Park precinct and the North West Growth

Evaluation Criteria	Response
	Centre area generally. The proposed development, therefore, provides an urgently needed commercial centre in the first release area of the Marsden Park precinct where no other centre has been designated. The proposal does not create a precedent or change the expectations of the land holder as it provides a facility which is needed by Colebee release area residents and has been planned for in other parts of the North West Growth Centre.
Have the cumulative effects of other spot rezoning proposals in the locality been considered? What was the outcome of these considerations?	In Section 3.4 of the Economic Impact Assessment by Duane Location IQ, proposed developments or potential locations for retail facilities in the Marsden Park Draft Structure Plan were considered, including at locations such as: - Marsden Park Town Centre. - Small Local Centres. - In the Marsden Park industrial area, a small neighbourhood shopping complex was designated to serve future workers. Other developments and the cumulative effects of these developments, therefore, have been considered, and the key information is summarised as follows: I. Any other future Local Centres are more than 4 km away from the proposed site and will serve different trade areas to the proposed Local Centre at Marsden Park. II. Any shopping facilities in the industrial area will service future workers for their takeaway food/convenience shopping, separate from the proposed role of the site at Marsden Park. III. Marsden Park Town Centre will continue to be the largest centre in the retail hierarchy and its potential will not be impacted by the proposed Local Centre development. The Marsden Park Town Centre is proposed to eventually include around 25,000 sq.m of floor space, including a discount department store and major supermarkets. The proposed Local Centre will not have any non-food facilities to compete with the discount department store and non-food role of Marsden Park Town Centre. Although the proposed Local Centre will have a small sized supermarket at less than 1,500 sq.m, this will be much smaller than the full- line supermarkets proposed at Marsden Park of at least 3,500 – 4,000 sq.m. Marsden Park Town Centre, therefore, will clearly be the major destination for food and grocery and non-food shopping within the catchment and its role in the retail hierarchy will not be compromised or delayed.

Evaluation Criteria	Response
Will the LEP facilitate a permanent employment generating activity or result in a loss of employment lands?	As indicated in Section 4.6 of the Economic Impact Assessment by Duane Location IQ, the proposed facility will create approximately 150 new jobs on a permanent basis as a direct result of the operation of the centre. This does not take into account multiplier effects from those jobs and also jobs created during the construction period. There will be no loss of employment lands.
Will the LEP impact upon the supply of residential land and therefore housing supply and affordability?	The proposal does not have a negative impact upon the supply of residential land. The location takes into account actions outlined in the Metropolitan Strategy and the North West Subregional Strategy which includes actions for development next to busy roads as well as providing employment and services for housing needs. The proposal will assist in providing a location that increases housing supply and affordability, which is an aim of both Strategies and is assessed below in Section 3.2.1.
Is the existing public infrastructure (roads, rail, utilities) capable of servicing the proposed site? Is there a good pedestrian and cycling access? Is public transport currently available or is there infrastructure capacity to support future public transport?	Infrastructure to support the proposal has been addressed in Section 2.3.4 of this report. In addition, a Traffic and Parking Assessment by John Coady Consulting is found at **Appendix 4** and is summarised in Section 3.3.2 of this report.
Will the proposal result in changes to the car distances travelled by customers, employees and suppliers? If so, what are the likely impacts in terms of greenhouse gas emissions, operating costs and road safety?	In Section 4.5, point iii of the Economic Impact Assessment by Duane Location IQ, it was outlined that the local population in the defined trade area for the proposed Marsden Park Local Centre currently has to undertake a round trip of at least 8 km for their food and grocery shopping at a centre such as Plumpton Marketplace. The proposed centre, once fully established, is likely to attract around 500,000 customer visits per year. If the development of the proposed Local Centre means that it stops customers undertaking an 8 km round trip to the nearest food and grocery facility, that represents a saving of at least 4 million km in travel each year for customers. Even at half this level, the kilometres saved are 2 million, representing a significant reduction in greenhouse gas emissions, costs of petrol, etc. for consumers, and less time on the major road network such as Richmond Road, which local residents would otherwise have to use to access food and grocery shopping facilities. Further, there will be job opportunities for local residents with 150 jobs generated at the centre, which will also result in reductions of travel time for those residents.

Evaluation Criteria	Response
Are there significant Government investments in infrastructure or services in the area whose patronage will be affected by the proposal? If so, what is the expected impact?	The impact of the proposal on Government infrastructure of services has been addressed through several reports including the Economic Impact Assessment by Duane Location IQ, the Traffic and Parking Assessment by John Coady Consulting as well as this report which details consultation with Blacktown City Council and the RTA. Consultations have not produced any objections or significant concerns at this stage. The assessments have been provided as an appendix to this report and are summarised in section 3.3.2 of this report.
Will the proposal impact on land that the Governments has identified a need to protect (e.g. land with high biodiversity values) or have other environmental impacts? Is the land constrained by environmental factors such as flooding?	The proposal does not impact on any protected lands and environmentally sensitive areas. This has been fully addressed in a report prepared by Eco Logical and has been summarised within this report in the following section 3.3.1. Environmental, Social and Economic Impact.
Will the LEP be compatible/complementary with surrounding land uses? What is the impact on amenity in the location and wider community? Will the public domain improve?	As identified in Section 3.2.1 of this report where the proposal is assessed against the provisions of the Metropolitan Strategy and Draft North West Subregional Strategy, the proposal is complementary with the future surrounding land uses of the area. The impact on amenity and the public domain are seen as positives and improvements, which are discussed further in Section 2.3.3 of this report.
Will the proposal increase choice and competition by increasing the number of retail and commercial premises operating in the area?	As identified at Section 4.4 of the Economic Impact Assessment by Duane Location IQ, there is no provision within the Marsden Park Draft Structure Plan for a convenience Local Centre at Marsden Park/Colebee. There are also no other facilities currently provided within the area to service the food and grocery needs of existing and future residents of the Colebee estate. The proposal, therefore, will clearly increase choice and competition by providing a convenient local centre for the local population in a highly accessible site at the entrance to the Colebee estate.
If a stand-alone proposal and not a centre, does the proposal have the potential to develop into a centre in the future?	The proposal is on a site that will be surrounded on all sides by residential development or Richmond Road. There is no potential for intensified development at the site beyond its proposed scale as a Local Centre to serve the Colebee release area.
What are the public interest reasons for preparing the draft plan? What are the implications of not	Section 5 of the Economic Impact Assessment by Duane Location IQ details the public interest reasons for preparing the Draft Plan including: I.Significant population growth immediately around

Evaluation Criteria	Response
proceeding at that time?	the site. II. Consumer trends – for a young family market who are time poor and, therefore, need a wide choice of convenient facilities close to their homes. III. Supply of retail facilities – including the lack of a proposed local centre identified in the Colebee release area. IV. The absence of impacts on existing retailers and the provision of new facilities. V. The overall net community benefit including improved retail facilities and increased convenience and further employment for youth in this growing area. The implications of not proceeding with the development are that there will continue to be a significant loss of spending outside the local area resulting in increased greenhouse gas emissions, increased time and petrol costs for local residents and the lack of a key employment facility for local residents, particularly youth, of the Colebee release area.

In summary the centre will provide the following Net Community Benefits:

- An improvement in the range of local retail facilities that will be available to residents.
- The proposed additional retail offer will significantly improve convenience and most likely improve choice of location and allow for price competition. The development of the Richmond Road site will allow greater convenience and choice for the local population who currently have to undertake a round trip of at least 8 km for their food and grocery shopping
- The creation of additional employment, both during the construction period, and more importantly, on an ongoing basis once the centre is completed and operational. This includes a number of youth employment opportunities with retail developments generally employing a large number of younger staff. This will be important for the significant and growing young population in the region.
- The new local centre will support civic cohesion and a sense of identity to this residential development.
- The introduction of a local centre in this location will best support sustainable transport where residents will either be able to walk or not have to incur long car journeys for shopping. The location of the centre at the western portion of the site will capture all residents.
- The location of the centre of the western portion of the site will avoid the requirement for service vehicles to enter into the residential core of the precinct and this avoid potential noise and safety issues, and will therefore be firmly within the public interest.
- In terms of broader strategic planning, the optimal implementation of which being in the public interest, developing this portion of the site for residential purposes would be a sub-optimal planning outcome in terms of potential noise

issues from Richmond Road, safety issues related to traffic, air quality and overall residential amenity.

Bells Creek Corridor

The proposed LEP amendment will have a significant community benefit, including:

- The purpose will be to protect lands for drainage which will service the Colebee Release Area;
- Provides a corridor that is generous in size, which makes a significant positive contribution to the visual quality of the future subdivision;
- The size of the corridor and future development does not impede flows in Bells Creek, therefore assists in maintaining the health of Bells Creek, which is a resource to the community;
- The corridor has been assessed and designed to manage flooding on the site, therefore providing a significant environment benefit for the future community; and
- The zone will ensure that environmental management objectives are reinforced in the corridor and have a positive impact on surrounding lands as well as wider environmental benefits to the community. Furthermore, it is proposed to maintain the corridor in single ownership, which will further assist in maintaining the ecological viability of the corridor.

In addition to this extremely wide corridor stormwater quality and water detention devices will need to be constructed. Whilst this will increase the effective width of the already oversized biodiversity corridor, it will further reduce the viability of development between Richmond Road and Bells Creek.

Further detailed investigation of this corridor is required to identify opportunities to better integrate land use in this area. The corridor should also be assessed holistically, and given that the vegetation is of higher quality on the eastern side of Bells Creek it would make sense environmentally to have a higher proportion located on that side of the creek.

3.2 Section B - Relationsip to the Strategic Planning Framework

3.2.1 Is the planning proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?

Mixed Uses Area

The rezoning proposal is consistent with the Metropolitan Plan for Sydney 2036 (Metropolitan Plan) and the draft North West Subregional Strategy. The is outlined in **Table 5** below:

Table 5. Assessment against Metropolitan Strategy and Draft Subregional Strategy

Metropolitan Plan	
Element/Action	**Response**
Element of Sustainable City Active Centres The compact city offers a range of liveability advantages. Centres with strong transport links and good internal walking environments offer better access to work and services. These advantages are multiplied where public spaces are safe and well designed, and a mix of shopping and other uses exists. Improved amenity also offers an environment where a wider mix and higher density of housing types are more viable. Housing, in turn, strengthens the market for retail, local services and jobs.	The proposal will provide much needed retail facilities for the Colebee Release Area. This is the only release in the North West Growth Centre, which has not been identified as having its own neighbourhood scale centre based on a walkable catchment.
Action A2.1 Consider consistency with the city of cities structure when assessing alternative land use, infrastructure and service delivery investment decisions	The Metropolitan Plan states: "Government land use and investment decisions will be consistent with the Metropolitan Plan vision for Sydney's spatial framework as a city of cities." An action to achieve the above statement includes, "contributing to the success of Major Centres to provide services, housing and employment at a subregional scale and focusing activity in centres generally." Blacktown is the nearest Major Centre to the site. The site offers housing and includes planned bus services, which will connect the site to regional centres.

Metropolitan Plan	
Element/Action	Response
Action B1.3 Aim to locate 80 per cent of all new housing within the walking catchments of existing and planned centres of all sizes with good public transport	The Metropolitan Plan states: "The Metropolitan Plan aims to focus the bulk of new housing development in or near centres with good public transport or where expanded public transport services are planned. Transport corridors with capacity also provide the opportunity for centres to grow and new centres to emerge. The Plan aims to locate 80 per cent of new housing within the walking catchments of centres to 2036." The proposal achieves this action and aim of the Metropolitan Plan, as it will provide services within a walkable catchment to new residential land uses. The site has been identified to accommodate additional bus services. The additional services would provide a greater level of public transport to the area connecting other key centres to the site.
Act ion D2.1 Ensure local planning controls include more low rise medium density housing in and around smaller local centres	The proposal will offer a range of housing around the proposed centre including medium density housing.
Action G3.1 Integrate environmental targets into infrastructure and land use planning	The centre is part of a greater development that will achieve the following: - Includes new services in the area; - Rehabilitate and improve the environmental performance of the riparian corridor; - Provide a centre that is within a walkable distance to surrounding housing; and - Future housing will be required to meet BASIX requirements;
Action G7.2 Plan appropriately for development adjacent to busy roads	The centre and surrounding land release has been thoroughly assessed and planned in its relationship to Richmond Road, including access to Richmond Road and traffic generating impacts. Future DAs for the centre with Council would include

Metropolitan Plan	
Element/Action	Response
	noise mitigation measures along Richmond Road, including noise barriers as walls or mounds at the site boundary. Any development of the area will consider the Department of Planning 's, "Development near rail corridors and busy roads – interim guideline".
Action H2.1 Plan and coordinate the effective and timely provision of social infrastructure and services	The delivery of social infrastructure and services has been considered and relevant items will form part of a VPA. The timing to provide these services has been considered and staged with the timing of land release and needs of the incoming community.
Action H3.1 Design and plan for healthy, safe, accessible and inclusive places	The preferred option of the centre layout has considered the healthy, safe, accessible and inclusive design in order to achieve the best possible outcome. This has been achieved by: - Orientating the centre towards the neighbourhood park; - Providing the centre in a location that has maximum access to the greater community; and - Providing the centre in a location that can achieve the safest possible access for vehicles and pedestrians. These aspects have been considered in relation to subdivision of land within the Colebee Release Area as well as the Marsden Park Industrial Precinct.
Action I 6.1 Ensure a rapid planning process for new release areas	The new planning 'Gateway' process and preparation of this planning proposal provides the mechanism to achieve a quicker planning outcome.
NW B1.2.1 Councils to implement the strategic employment capacity targets and plan sufficient commercial, retail industrial and business park floor space within principle LEPs	As outlined in the Duane Location IQ Economic Impact Assessment the area will be in need of neighbourhood retail and commercial services. The proposal will assist Council meeting demand for retail and commercial uses in the locality at convenient locations.
NW4.12 North West Councils to investigate appropriate locations for retail uses in centres, business development zones (supporting identified strategic centres and Enterprise corridors	This proposal provides an investigation and demonstrates a need for neighbourhood scale retail and commercial uses in the Colebee Release area.

NW7.2.2 Councils to consider the guidelines for development along busy roads when planning for housing near any road with an AADT volume of more than 20,000 vehicles	Any development of the area will consider the Department of Planning and Infrastructure's, "*Development near rail corridors and busy roads – interim guideline*". Future DAs for the centre with Council would include noise mitigation measures along Richmond Road, including noise barriers as walls or mounds at the site boundary.
NW C2.1.2 Councils to provide in their LEPs zoned capacity for a significant majority of new dwellings to be located in strategic and local centres	The proposal will permit a neighbourhood centre in close proximity to housing and a local park. The placement of the centre will assist in the viability of such development.

Bells Creek Corridor

We note that in relation to the above question, the Sydney Metropolitan Plan has been updated as of December 2010, subject to a five year review. The new strategic plan for Sydney is the Metropolitan Plan for Sydney 2036 (Metropolitan Plan), which provides a framework for sustainable growth and development across Sydney to 2036.

The rezoning proposal is consistent with the Metropolitan Plan and the North West draft Subregional Strategy. The is outlined in **Table 6** and **Table 7** below:

Table 6. Assessment against Metropolitan Plan

Metropolitan Plan	
Action	Response
Action G4.1 Achieve water quality outcomes by embedding water sensitive urban design principles and stormwater and catchment objectives and targets in local plans	The future development of the site will include implementation of WSUD measures to ensure that the land maintains its function for drainage purposes. In addition, WSUD measures will assist in the subject land to maintain is environmental and ecological value.
Action G4.2 Guide Councils in mapping significant riparian corridors	The mapping and design of the drainage infrastructure and riparian corridor will significantly benefit Council in accurately determining the boundary of the corridor as well as the flood extent. The proposal will set a precedent for mapping of the riparian corridor and drainage infrastructure on surrounding lands.
Action G5.2 Ensure integrated water cycle management for new release areas and sites for urban renewal	Future land release will include water management measures to ensure that the subject land performs as required.

Table 7. Assessment against Draft Subregional Strategy

North West draft Subregional Strategy	
Action	Response
E2.1 Improve health of waterways, coasts and estuaries	The site is subject to DAs currently with Council, which propose future rehabilitation of the corridor. The proposal as supported by the DAs will contribute to the ongoing health of the riparian corridor and Bells Creek.
E2.2 Protect Sydney's unique diversity of plants and animals	As above.
NW5.3.1 Councils are to plan for land affected by flooding in accordance with the Government's Flood Prone Land Policy.	The mapping and design of the drainage infrastructure and riparian corridor will significantly benefit Council in accurately determining the boundary of the corridor as well as the flood extent. This will significantly assist Council in planning development along the Bells Creek riparian corridor.

3.2.2 Is the planning proposal consistent with the local council's Community Strategic Plan, or other local strategic plan?

Mixed Uses Area

The Colebee Release Area is part of the North West Growth Centre but not subject to the structure plan or the development control framework established for this area. The area is administered by Blacktown City Council in regard to new or modified strategies.

The primary strategy guiding the hierarchy of centres in Blacktown is Blacktown Development Control Plan 2006 (BDCP 2006). Under BDCP 2006 the following hierarchy of centres is set out:

- Subregional centres
- District centres
- Large neighbourhood centres
- Small neighbourhood centres

The Blacktown DCP stipulates the guidelines for Neighbourhood Centres. Specifically, Neighbourhood Centres within Blacktown City are broken down into two different levels:

- Large Neighbourhood Centres -5000 sq. m to 15000 sq. m GFA
- Small Neighbourhood Centres -5000 sq. m or less GFA.

The proposed GFA of the neighbourhood centre for this proposal fits the description of a small neighbourhood centre. The proposed concept for this rezoning addresses the development guidelines in the following ways:

- Bus facilities are envisaged to be located adjacent to the site on the proposed collector roadway;
- The centre will not outgrow its role in the established Blacktown retail hierarchy as it will be limited in its size from future growth or expansion as a retail centre due to surrounding residential development adjacent and on site;
- The retail/commercial segment of the mixed use centre will not exceed two stories in height;
- All design aspects of the centre such as the location of buildings, car parking, landscaping, public transport and vehicular and pedestrian movements will enable the centre to function efficiently;
- All car parking for the local centre shall be provided on-site.

Due to these measures, the Planning Proposal meets the relevant criteria of Blacktown DCP 2006 under the proposed rezoning to 3(a) General Business.

Bells Creek Corridor

The Colebee Release Area is part of the North West Growth Centre but not subject to the structure plan or the development control framework established for this area. The area is administered by Council in regard to new or modified strategies.

The BDCP 2006 identifies the subject land as a riparian corridor. Key controls in the BDCP 2006 that pertain to the riparian corridor include:

1. A 40m environmental riparian corridor is to be provided along either side of Bells Creek as shown at Figure 30 of the DCP. The width of corridor is to be measured from the top of the bank.
2. Any road crossing of Bells Creek is to be provided via a clear span bridge (with piers) with a length of approximately 40m. The design of the bridge should have regard to the NSW Fisheries publication "Policy and Guidelines for Fish Friendly Roads and Waterways Crossings 1999".
3. The Bells Creek Riparian Corridor is to be revegetated with appropriate native tree and shrub species having regard to its drainage function and vegetation management for bushfire protection.
4. A Landscape Plan for the Bells Creek Corridor is to be submitted to Council as part of the residential subdivision DA for either of the adjoining residential areas. The Landscape Plan is to:
    a. Identify existing trees to be retained;
    b. Indicate the location, type and size and all new plant species; and
    c. Address the on-going management of the corridor.
5. The Bells Creek Riparian Corridor is to be appropriately designed and signposted to minimise public access.
6. A description of the aquatic vegetation (including trees/snags, macrophytes and algae), habitats and gravel beds in Bells Creek, is required to accompany any future subdivision DA for land which adjoins the creek, together with an assessment of how these features of the creek will be impacted by future subdivision and development.
7. Future development adjoining Bells Creek is to have regard to the NSW Fisheries Policy and Guidelines for Aquatic Habitat Management and Fish Conservation (1999).

The proposal achieves Council's controls. This is reinforced in the DAs that have been approved by Council.

BDCP 1996 also acknowledges the Colebee and Nurragingy Land Grant. This is further discussed in S3.3.2 if this planning proposal.

3.2.3 Is the planning proposal consistent with applicable state environmental planning policies?

Mixed Use Area

The proposed mixed use area rezoning would address and/or be consistent with all relevant Sate Environmental Planning Policies (SEPPs). The following table outlines the intent of relevant SEPPs and consistency of the Planning Proposal.

Table 8. Mixed use area consistency with SEPPs

State Environmental Planning Policies		
SEPP	Consistent	Comments
SEPP No. 1 – Development Standards	Not Applicable	
SEPP No. 4 – Development Without Consent and Miscellaneous Exempt and Complying Development	Not Applicable	
SEPP No. 6 – Number of Storeys in a Building	Not Applicable	.
SEPP No. 14 – Coastal Wetlands	Not Applicable	
SEPP No. 15 – Rural Landsharing Communities	Not Applicable	
SEPP No. 19 – Bushland in Urban Areas	Not Applicable	
SEPP No. 21 – Caravan Parks	Not Applicable	
SEPP No. 22 – Shops and Commercial Premises	Consistent	The Proposal provides for commercial land uses on site.

State Environmental Planning Policies		
SEPP	Consistent	Comments
SEPP No. 26 – Littoral Rainforests	Not Applicable	
SEPP No. 29 – Western Sydney Recreation Area	Not Applicable	
SEPP No. 30 – Intensive Agriculture	Not Applicable	
SEPP No. 32 – Urban Consolidation (Redevelopmen t of Urban Land)	Not Applicable	
SEPP No. 33 – Hazardous and Offensive Development	Not Applicable	
SEPP No. 36 – Manufactured Home Estates	Not Applicable	
SEPP No. 39 –Spit Island Bird Habitat	Not Applicable	
SEPP No. 41 – Casino Entertainment Complex	Not Applicable	
SEPP No. 44 – Koala Habitat Protection	Not Applicable	
SEPP No. 47 – Moore Park Showground	Not Applicable	
SEPP No. 50 – Canal Estate Development	Not Applicable	
SEPP No. 52 – Farm Dams and Other Works in Land and Water Management Plan Areas	Not Applicable	
SEPP No. 53 – Metropolitan Residential Development	Not Applicable	

State Environmental Planning Policies		
SEPP	Consistent	Comments
SEPP No. 55 – Remediation of Land	Consistent	The site would be appropriately remediated to make the site suitable for mixed use development. SKM undertook a preliminary Contamination Site Investigation for lands surrounding the Colebee Release Area. SKM conducted a preliminary site inspection in April of 2002 and prepared the Contamination Assessment Report titled "Colebee Release Area & Adjoining Lands Local Environmental Study" in June 2003. The report was prepared generally in accordance with the NSW EPA 'Guidelines for Consultants Reporting on Contaminated Sites (1997)'. No evidence of contamination of the subject site was discovered in this assessment. The report recommended further investigations occur at future stages.
SEPP No. 59 – Central Western Sydney Regional Open Space and Residential	Not Applicable	
SEPP No. 60 – Exempt and Complying Development	Not Applicable	
SEPP No. 62 – Sustainable Aquaculture	Not Applicable	
SEPP No. 64 – Advertising and Signage	Consistent	The Proposal may include the future provision of signage. Any requirements for signage and advertising structures would be consistent with this SEPP and other local controls.
SEPP No. 65 – Design Quality of Residential Flat Development	Not Applicable	
SEPP No. 70 – Affordable Housing (Revised Schemes)	Not Applicable	
SEPP No. 71 – Coastal Protection	Not Applicable	
SEPP (Building Sustainability Index: BASIX) 2004	Not Applicable	

State Environmental Planning Policies		
SEPP	Consistent	Comments
SEPP (Housing for Seniors or People with a Disability) 2004	Not Applicable	
SEPP (Major Development) 2005	Not Applicable	
SEPP (Sydney Region Growth Centres) 2006	Consistent	The proposal is consistent with the aims of the growth centre to provide high quality urban development that services the needs of residents and protects the natural environment. It is evident that the Colebee Release Area is essentially void of specific strategic direction with regard to the need for a neighbourhood centre, unlike the rest of the release areas in the North West Sector which have convenient neighbourhood centres specified for related anticipated residential development. This is because the rezoning of the area preceded the structure planning process for the North West Sector. This proposal will bring the release area in to line with the spatial distribution of neighbourhood centres in the North West Sector.
SEPP (Infrastructure) 2007	Consistent	The proposal will need to be referred to the Roads and Traffic Authority as the land is adjacent to a classified road. The proposed rezoning would permit a development that is unlikely to have any further traffic impacts as detailed in Section 4.3.2 of this report.
SEPP (Kosciuszko National Park – Alpine Resorts) 2007	Not Applicable	
SEPP (Mining, Petroleum Production and Extractive Industries) 2007	Not Applicable	
SEPP (Temporary Structures) 2007	Not Applicable	
SEPP (Exempt and Complying Development Codes) 2008	Not Applicable	
SEPP (Rural Lands) 2008	Not Applicable	
SEPP (Western Sydney (Parklands) 2009	Not Applicable	

State Environmental Planning Policies		
SEPP	Consistent	Comments
SEPP (Affordable Rental Housing) 2009	Not Applicable	
SEPP (Western Sydney Employment Area) 2009	Not Applicable	
Draft State Environmental Planning Policy (Competition) 2010	Not Applicable	The draft SEPP supports increased competition in the retail sector. This proposal is entirely consistent with that principle. The SEPP does allow for consideration of broad impact on other centres to be considered. In this regard Duane Location IQ advise: *"Impacts on other retailers beyond the main trade area will be relatively limited and will not impact on their ability to continue to operate. There are limited implications for any retail stores beyond the trade area as these centres will continue to attract a proportion of the retail floor space demand of the growing population in the Richmond Road trade area."*
SEPPs –Formerly known as Regional Environmental Plans (REPs) and Sydney Region Environmental Plans (SREPs)		
Sydney REP No. 5 –(Chatswood Town Centre)	Not Applicable	
Sydney REP No. 8 –(Central Coast Plateau Areas)	Not Applicable	
Sydney REP No. 9 –Extractive Industry (No. 2-1995)	Not Applicable	
Sydney REP No. 11 –Penrith Lakes Scheme	Not Applicable	
Sydney REP No.13 –Mulgoa Valley	Not Applicable	
Sydney REP No. 16 –Walsh Bay	Not Applicable	
Sydney REP No. 17 –Kurnell Peninsula (1989)	Not Applicable	

State Environmental Planning Policies		
SEPP	Consistent	Comments
Sydney REP No. 18 –Public Transport Corridors	Not Applicable	
Sydney REP No. 19 –Rouse Hill Development Area	Not Applicable	The SREP does not apply to lands released under the Growth Centres SEPP.
Sydney REP No. 20 –Hawkesbury-Nepean River (No 2 -1997)	Not Applicable	
Sydney REP No. 24 –Homebush Bay Area	Not Applicable	
Sydney REP No. 25 –Orchard Hills	Not Applicable	
Sydney REP No. 26 –City West	Not Applicable	
Sydney REP No. 28 –Parramatta	Not Applicable	
Sydney REP No. 29 –Rhodes	Not Applicable	
Sydney REP No. 30 –St. Marys	Not Applicable	
Sydney REP No. 33 –Cooks Cove	Not Applicable	
Sydney REP (Sydney Harbour Catchment 2005)	Not Applicable	
Drinking Water Catchments REP No. 1	Not Applicable	
Greater Metropolitan REP No. 2- Georges River Catchment	Not Applicable	

Bells Creek Corridor

The proposed Bells Creek corridor rezoning would address and/or be consistent with all relevant Sate Environmental Planning Policies (SEPPs). The following table outlines the intent of relevant SEPPs and consistency of the Planning Proposal.

Table 9. Bells Creek corridor consistency with SEPPs

State Environmental Planning Policies		
SEPP	Consistent	Comments
SEPP No. 1 – Development Standards	Not Applicable	
SEPP No. 4 – Development Without Consent and Miscellaneous Exempt and Complying Development	Not Applicable	
SEPP No. 6 – Number of Storeys in a Building	Not Applicable	.
SEPP No. 14 – Coastal Wetlands	Not Applicable	
SEPP No. 15 – Rural Landsharing Communities	Not Applicable	
SEPP No. 19 – Bushland in Urban Areas	Not Applicable	
SEPP No. 21 – Caravan Parks	Not Applicable	
SEPP No. 22 – Shops and Commercial Premises	Not Applicable	
SEPP No. 26 – Littoral Rainforests	Not Applicable	
SEPP No. 29 – Western Sydney Recreation Area	Not Applicable	
SEPP No. 30 – Intensive Agriculture	Not Applicable	

State Environmental Planning Policies		
SEPP	Consistent	Comments
SEPP No. 32 – Urban Consolidation (Redevelopment of Urban Land)	Not Applicable	
SEPP No. 33 – Hazardous and Offensive Development	Not Applicable	
SEPP No. 36 – Manufactured Home Estates	Not Applicable	
SEPP No. 39 –Spit Island Bird Habitat	Not Applicable	
SEPP No. 41 – Casino Entertainment Complex	Not Applicable	
SEPP No. 44 – Koala Habitat Protection	Not Applicable	
SEPP No. 47 – Moore Park Showground	Not Applicable	
SEPP No. 50 – Canal Estate Development	Not Applicable	
SEPP No. 52 – Farm Dams and Other Works in Land and Water Management Plan Areas	Not Applicable	
SEPP No. 53 – Metropolitan Residential Development	Not Applicable	
SEPP No. 55 – Remediation of Land	Not Applicable	
SEPP No. 59 – Central Western Sydney Regional Open Space and Residential	Not Applicable	

State Environmental Planning Policies		
SEPP	Consistent	Comments
SEPP No. 60 – Exempt and Complying Development	Not Applicable	
SEPP No. 62 – Sustainable Aquaculture	Not Applicable	
SEPP No. 64 – Advertising and Signage	Not Applicable	
SEPP No. 65 – Design Quality of Residential Flat Development	Not Applicable	
SEPP No. 70 – Affordable Housing (Revised Schemes)	Not Applicable	
SEPP No. 71 – Coastal Protection	Not Applicable	
SEPP (Building Sustainability Index: BASIX) 2004	Not Applicable	
SEPP (Housing for Seniors or People with a Disability) 2004	Not Applicable	
SEPP (Major Development) 2005	Not Applicable	
SEPP (Sydney Region Growth Centres) 2006	Consistent	SEPP (Sydney Region Growth Centres) 2006 provides for the coordinated release of land for residential, employment and other urban development in the North West and South West growth centres of the Sydney Region The SEPP identifies the land in which the site is located as the designated North West Growth Centre. The proposed zoning of the subject land is consistent with the Growth Centres SEPP and proposed amendments in the recently exhibited *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (minor amendments). The key aims from the policy that the proposal is consistent with, include:

State Environmental Planning Policies		
SEPP	Consistent	Comments
		• *to provide for the orderly and economic provision of infrastructure in and to those growth centres;* • *to protect and enhance land with natural value; and* • *to enable the establishment of vibrant, sustainable and liveable neighbourhoods that provide for community well-being and high quality local amenity.*
SEPP (Infrastructure) 2007	Not Applicable	
SEPP (Kosciuszko National Park – Alpine Resorts) 2007	Not Applicable	
SEPP (Mining, Petroleum Production and Extractive Industries) 2007	Not Applicable	
SEPP (Temporary Structures) 2007	Not Applicable	
SEPP (Exempt and Complying Development Codes) 2008	Not Applicable	
SEPP (Rural Lands) 2008	Not Applicable	
SEPP (Western Sydney (Parklands) 2009	Not Applicable	
SEPP (Affordable Rental Housing) 2009	Not Applicable	
SEPP (Western Sydney Employment Area) 2009	Not Applicable	
Draft State Environmental Planning Policy (Competition) 2010	Not Applicable	

State Environmental Planning Policies		
SEPP	Consistent	Comments
SEPPs –Formerly known as Regional Environmental Plans (REPs) and Sydney Region Environmental Plans (SREPs)		
Sydney REP No. 5 –(Chatswood Town Centre)	Not Applicable	
Sydney REP No. 8 –(Central Coast Plateau Areas)	Not Applicable	
Sydney REP No. 9 –Extractive Industry (No. 2-1995)	Not Applicable	
Sydney REP No. 11 –Penrith Lakes Scheme	Not Applicable	
Sydney REP No.13 –Mulgoa Valley	Not Applicable	
Sydney REP No. 16 –Walsh Bay	Not Applicable	
Sydney REP No. 17 –Kurnell Peninsula (1989)	Not Applicable	
Sydney REP No. 18 –Public Transport Corridors	Not Applicable	
Sydney REP No. 19 –Rouse Hill Development Area	Not Applicable	
Sydney REP No. 20 –Hawkesbury-Nepean River (No 2 -1997)	Not Applicable	
Sydney REP No. 24 –Homebush Bay Area	Not Applicable	
Sydney REP No. 25 –Orchard Hills	Not Applicable	
Sydney REP No. 26 –City West	Not Applicable	

State Environmental Planning Policies		
SEPP	Consistent	Comments
Sydney REP No. 28 –Parramatta	Not Applicable	
Sydney REP No. 29 –Rhodes	Not Applicable	
Sydney REP No. 30 –St. Marys	Not Applicable	
Sydney REP No. 33 –Cooks Cove	Not Applicable	
Sydney REP (Sydney Harbour Catchment 2005)	Not Applicable	
Drinking Water Catchments REP No. 1	Not Applicable	
Greater Metropolitan REP No. 2- Georges River Catchment	Not Applicable	

3.2.4 Is the planning proposal consistent with applicable Ministerial Directions (s. 117 directions)?

The planning proposal is consistent with all relevant S117 Directions for the mixed-use area as well as the Bells Creek corridor.

Mixed Use Area

An assessment of the Section 117 Directions for the mixed-use area is outlined in **Table 10** below.

Table 10. S.117 Directions – Mixed use area assessment of consistency

Section 117 Ministerial Directions			
Clause	Direction	Consistent	Comments
1 Employment and Resources			
1.1	Business and Industrial Zones	Consistent	The Proposal provides for Mixed Use, which would allow business operations to services a local neighbourhood catchment.
1.2	Rural Zones	Not Applicable	
1.3	Mining, Petroleum Production and Extractive Industries	Not Applicable	
1.4	Oyster Aquaculture	Not Applicable	
1.5	Rural Lands	Not Applicable	
2 Environment and Heritage			
2.1	Environment Protection Zones	Not Applicable	
2.2	Coastal Protection	Not Applicable	
2.3	Heritage Conservation	Consistent	The planning proposal would consider the significance of the Colebee and Nurragingy Land Grant (refer to S3.3.2)
2.4	Recreation Vehicle Areas	Not Applicable	

Section 117 Ministerial Directions			
Clause	Direction	Consistent	Comments
3 Housing, Infrastructure and Urban Development			
3.1	Residential Zones	Not Applicable	The Planning Proposal will provide future residents appropriate access to infrastructure and services. This will also minimise the impact of residential development on the environment and resource lands by reducing travel needs in the area.
3.2	Caravan Parks and Manufactured Home Estates	Not Applicable	
3.3	Home Occupations	Consistent	The Proposal permits home occupation without the need for development consent.
3.4	Integrating Land Use and Transport	Consistent	The mixed use centre will improve access to housing, jobs and services by walking, cycling and future bus options, and reduce dependence on cars by providing a conveniently located neighbourhood centre, which in turn reduces travel demand including the number of trips generated by development.
3.5	Development Near Licensed Aerodromes	Not Applicable	
4 Hazard and Risk			
4.1	Acid Sulphate Soils	Consistent	Appropriate testing has occurred on site as required by the approved developments thereby deeming the land suitable for development void of hazard and risk.
4.2	Mine Subsidence and Unstable Land	Not Applicable	
4.3	Flood Prone Land	Consistent	The proposal meets the objectives of this direction. The proposal is consistent with all Council and State government policy for flood prone land. The proposal is within the required 1 in 100 year ARI design criteria. Refer to Section 3.3.2 of this report.
4.4	Planning for Bushfire Protection	Not Applicable	

Section 117 Ministerial Directions			
Clause	Direction	Consistent	Comments
5 Regional Planning			
5.1	Implementation of Regional Strategies	Not Applicable	
5.2	Sydney Drinking Water Catchments	Not Applicable	
5.3	Farmland of State and Regional Significance on the NSW Far North Coast	Not Applicable	
5.4	Commercial and Retail Development along the Pacific Highway, North Coast	Not Applicable	
5.5	Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA) (Revoked 18 June 2010)	Not Applicable	
5.6	Sydney to Canberra Corridor (Revoked 10 July 2008. See Amended Directions 5.1)	Not Applicable	
5.7	Central Coast (Revoked 10 July 2008. See amended Directions 5.1)	Not Applicable	
5.8	Second Sydney Airport: Badgerys Creek	Not Applicable	
6 Local Plan Making			
6.1	Approval and Referral Requirements	Consistent	The proposed LEP amendment to a zone under the current LEP, with no site-specific provisions, as well as the suitability of the intended use for the site will minimise any future requirements for concurrence and referrals.
6.2	Reserving Land for Public Purposes	Consistent	The drainage infrastructure is for public purposes. The proposal meets the objectives of this direction.
6.3	Site Specific Provisions	Consistent	The Proposal does not contain site specific provisions.

Section 117 Ministerial Directions			
Clause	Direction	Consistent	Comments
7. Metropolitan Planning			
7.1	Implementation of the Metropolitan Strategy	Consistent	The Proposal is consistent with the aims, objectives and provisions of the Metropolitan Plan for Sydney 2036 (the Metropolitan Plan replaced the Metropolitan Strategy in 2010).

Bells Creek Corridor

An assessment of the Section 117 Directions for the Bells Creek corridor is outlined in **Table 11** below.

Table 11. S.117 Directions – Bells Creek corridor assessment of consistency

Section 117 Ministerial Directions			
Clause	Direction	Consistent	Comments
1 Employment and Resources			
1.1	Business and Industrial Zones	Not Applicable	
1.2	Rural Zones	Not Applicable	
1.3	Mining, Petroleum Production and Extractive Industries	Not Applicable	
1.4	Oyster Aquaculture	Not Applicable	
1.5	Rural Lands	Not Applicable	
2 Environment and Heritage			
2.1	Environment Protection Zones	Yes	The proposal will ensure the protection and conservation of environmental values of the subject land.
2.2	Coastal Protection	Not Applicable	
2.3	Heritage Conservation	Yes	The Colebee Release Area has been subject to detailed heritage assessment. In regard to indigenous heritage, the site is identified as being within Nurragingy Aboriginal Land. An Aboriginal Heritage Impact Permit has been lodged with DECCW.

Section 117 Ministerial Directions			
Clause	Direction	Consistent	Comments
2.4	Recreation Vehicle Areas	Not Applicable	
3 Housing, Infrastructure and Urban Development			
3.1	Residential Zones	Not Applicable	
3.2	Caravan Parks and Manufactured Home Estates	Not Applicable	
3.3	Home Occupations	Not Applicable	
3.4	Integrating Land Use and Transport	Not Applicable	
3.5	Development Near Licensed Aerodromes	Not Applicable	
4 Hazard and Risk			
4.1	Acid Sulphate Soils	Yes	Appropriate testing has occurred on sit. The assessment found that: "The development proposed is not considered to result in exposure of groundwater, or excavations to within close proximity of the groundwater." Refer to Section 3.3.3 of this report.
4.2	Mine Subsidence and Unstable Land	Not Applicable	
4.3	Flood Prone Land	Yes	The proposal meets the objectives of this direction. The proposal is consistent with all Council and State government policy for flood prone land. The proposal is within the required 1 in 100 year ARI design criteria. Refer to Section 3.3.3 of this report.
4.4	Planning for Bushfire Protection	Yes	The proposal meets the objectives of this direction. The proposal provides adequate bushfire measures and APZ, in accordance with all relevant Council and State government policies. Refer to Section 3.3.3 of this report for further discussion.

Section 117 Ministerial Directions			
Clause	Direction	Consistent	Comments
5 Regional Planning			
5.1	Implementation of Regional Strategies	Not Applicable	
5.2	Sydney Drinking Water Catchments	Not Applicable	
5.3	Farmland of State and Regional Significance on the NSW Far North Coast	Not Applicable	
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5.6	Sydney to Canberra Corridor (Revoked 10 July 2008. See Amended Directions 5.1)	Not Applicable	
5.7	Central Coast (Revoked 10 July 2008. See amended Directions 5.1)	Not Applicable	
5.8	Second Sydney Airport: Badgerys Creek	Not Applicable	
6 Local Plan Making			
6.1	Approval and Referral Requirements	Yes	The proposed LEP amendment to a standard zone under the current LEP, with no site-specific provisions, as well as the suitability of the intended use for the site will minimise any future requirements for concurrence and referrals.
6.2	Reserving Land for Public Purposes	Yes	The drainage infrastructure is for public purposes. The proposal meets the objectives of this direction.
6.3	Site Specific Provisions	Not Applicable	

3.3 Section C - Environmental, social and economic impact

3.3.1 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?

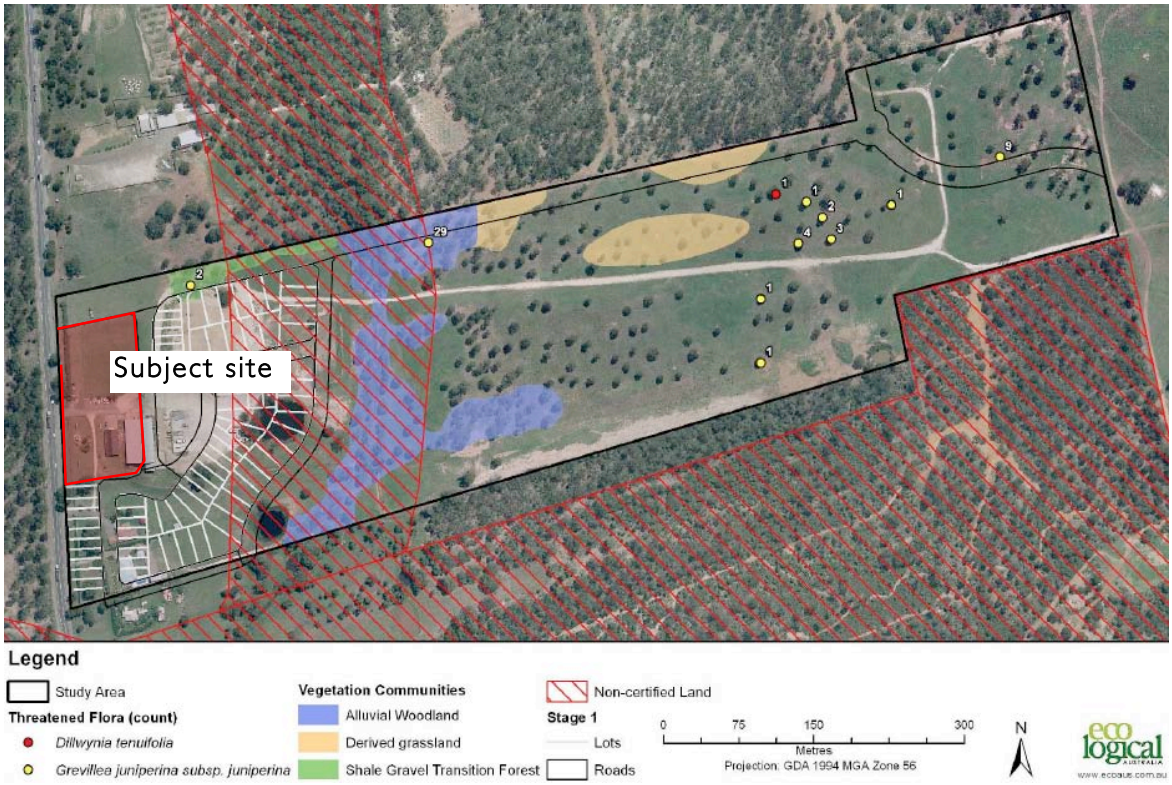
Mixed Use Area

Legacy Property commissioned Eco Logical Australia Pty Ltd (ELA) to undertake an Ecological Assessment of the proposed subdivision of 799 Richmond Road, Marsden Park.

The assessment found that in relation to the site there were no threatened vegetation species on site. Refer to **Figure 6** below for vegetation survey. The report identified that a large number of threatened fauna species have previously been recorded within the locality or have the potential to occur on the site although a fauna survey identified that no threatened fauna species were specifically recorded on the site.

Refer to **Appendix 3** for the ecological assessment. The ecological assessment is also accompanied by an addendum, which states that the assessment still applies and no further assessment is required, regardless of any amendments to the proposed subdivision layout.

Figure 6. Vegetation Survey



Bells Creek Corridor

The Ecological Assessment at **Appendix 3** found that in relation to the site there were no threatened vegetation species.

> *"Whilst the site has been cleared, sparse remnant trees and native ground covers were present in varying densities across the site. Directly to the north of the site an area of intact SGTF is present, whilst to the south of the site lays an area of Cooks River Castlereagh Ironbark Forest. Whilst it is likely that both communities were once on the site and that there would have been transitional areas between the two communities, SGTF is likely to have been the dominant community.*
>
> *SGTF forms part of the EPBC listed of Cumberland Plain Shale Woodland and Shale Gravel Transition Forest, a critically endangered ecological community. However, due to the poor quality and small size of vegetation on the site, the EPBC thresholds identified in Table 1 (in EcoLogical report) were not met.*
>
> *Consequently, there is no EPBC Act listed vegetation on the site."*

The report also found:

> *"On the lower slopes, generally adjacent to Bells Creek lies an area of disturbed Alluvial Woodland. Immediately adjacent to the banks of Bells Creek the vegetation generally exhibited better canopy cover, however significant weed invasion was also present. The understorey was typically dominated by a variety of exotic grasses, although areas of native understorey are present on the eastern side of Bells Creek, slightly setback from Bells Creek itself.'*

Refer to **Figure 6** above for vegetation survey. The report also identified that a large number of threatened fauna species have previously been recorded within the locality or have the potential to occur on the site although a fauna survey identified that no threatened fauna species were specifically recorded on the site.

In order to maximise retention of existing vegetation, minimal reshaping of the drainage corridor is being proposed (up to approximately 500mm of cut). The reshaping is required in order to confine flooding to within the 40m corridor from the top of bank on both sides of Bells Creek and to ensure that there is no increase in the 1 in 100 year flood levels upstream of the site. In addition, channel rehabilitation and appropriate scour protection will also be provided where necessary, subject to detailed design.

3.3.2 Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

Mixed Use Area

Traffic and Transport

Legacy Property commissioned John Coady Consulting to undertake a Traffic and Parking Assessment (refer to **Appendix 4**). The assessment reviewed proposed parking and service vehicle arrangements as well as the traffic generation of the mixed use centre concept development. The report makes the following key conclusions:

Parking

The proposed provision of 152 off-street parking spaces to serve the mixed-use development satisfies the requirement calculated in accordance with Blacktown DCP 2006. In the circumstances, it can be concluded that the proposed mixed-use development has no unacceptable parking implications.

Service vehicle arrangements

The mixed use centre concept includes three loading facilities, comprising:

- a loading dock at the rear of the supermarket building with capacity to accommodate 2 trucks, 1 x Articulated Vehicle 16.9m long and 1 x Large Rigid Vehicle 12.5m long;
- a "parallel park" loading zone at the rear of some of the speciality shops located centrally in the proposed development. The loading zone, which is approximately 25m long, can accommodate 3-4 parked commercial vehicles depending on their size; and
- a "speciality shops" loading dock approximately 14m long located at the rear of the speciality shops at the northern end of the site which can accommodate a Large Rigid Vehicle 12.5m long.

The concept proposes vehicular access for these loading facilities to be via an entrance driveway off the local road system at the southern end of the site. Vehicles departing the loading facilities will use the exit driveway that is connected to the car parking egress onto the collector road, which forms the eastern boundary of the site.

Computer simulation program called AutoTrack Version 8.90a was utilised in order to determine the ability of service vehicles to access these loading facilities. The program has been specifically created for the simulation of vehicle turning manoeuvres and ground clearance evaluation.

The turning paths provided by AutoTrack reveal that:

- a 16.9m long Articulated Vehicle can satisfactorily access the "supermarket" loading dock with a 12.5m long rigid truck in the loading dock.
- trucks can access the "parallel park" loading zone.
- a 12.5m long rigid truck can satisfactorily access the "speciality shops" loading dock.

In the circumstances it can be concluded that the proposed development has no unacceptable implications for service vehicles and further that the location of the site at the western portion of the release area precludes the necessity for heavy vehicles to entering the residential core.

Traffic generation

Road Delay Solutions has conducted additional traffic modelling to assess the traffic implications of the proposed mixed-use development. For the purposes of that traffic modelling it has been assumed that the proposed mixed-use development will focus on attracting patronage from the Colebee Release, comprising both the "Smith" and "Medallist" land. Notwithstanding, the potential for the proposed mixed-use development to attract some patronage from Richmond Road traffic is acknowledged and the traffic model assumes that up to 10% of the traffic generation potential of the proposed mixed-use development will be drawn from Richmond Road traffic.

The analysis shows that both key intersections on the road network serving the proposed mixed use development, that is Richmond Road/"Smith" land collector road and "Smith" land collector road/local road, operate satisfactorily under projected post-development traffic demand such that it can be concluded that the proposed mixed-use development has no unacceptable traffic implications.

Noise

The future development of the site would be undertaken in line with guidelines for Development Near Rail Corridors And Busy Roads published by the Department of Planning and will be designed to comply with DECC Industrial Noise Policy in terms of plant.

Bells Creek Corridor

Bushfire

Legacy Property engaged EcoLogical Australia to undertake a bushfire assessment of the site in relation to the proposed development. The report titled, "Bushfire Protection Assessment", dated July 2010 found that

> "…the proposal meets the requirement of Planning for Bushfire Protection (2006) and provides an acceptable level of bushfire protection for the site."

EcoLogical Australia recently confirmed that findings from their report are unchanged as a result of any minor alterations to the proposed Stage 1 DA layout. Refer to **Appendix 5** for bushfire assessment. The bushfire assessment is also accompanied by an addendum, which states that the assessment still applies and no further assessment is required, regardless of amendments to the proposed subdivision layout.

Traffic and Transport

The subject land of this proposal will not be impacted on by any traffic and transport generation from the surrounding land release. The subject land is proposed to be bounded by roads on the eastern and western side. Adequate distance from riparian corridor has been allowed for in accordance with DECCW guidelines and Council's requirements, as such the proposed road layout does not enter the drainage infrastructure zone or riparian corridor. In addition, a bridge is proposed to span over the riparian corridor. The bridge is required in order to achieve the following outcomes:

- Provide connectivity between the western side and the eastern side of Bell's Creek; and
- Span the 1 in 100 year flood level designated within the riparian corridor.

Flooding

The proposal has been subject to detailed assessment and consultation with Council and DECCW in order to contain flooding. The assessment involved the establishment of flood levels and determination of flood extent without adversely affecting levels upstream. The design of the riparian corridor and drainage infrastructure, as provided in the DAs currently with Council will include re-shaping of the drainage corridor to confine flooding to within the 40m corridor from the top of bank on both sides of Bells Creek. This will ensure that there is no increase in the 1 in 100 year flood levels upstream of the site.

Cardno have provided a letter supporting the design and rezoning application, which is found at **Appendix 2**.

Salinity

The DAs that are currently with Council are supported by a salinity report, prepared by Douglas Partners Pty Ltd, titled "Report on Salinity Assessment and Management – Proposed Integrated Residential Development, 799 Richmond Road, Marsden Park", dated June 2010. The assessment was undertaken for the entire site located at 799 Richmond Road, Marsden Park including the riparian and drainage corridor. The report found that:

> *"In general, the site is typically non-saline to slightly saline to a nominal depth of about 0.5 -1.0 m below ground level. Moderately saline conditions were encountered at a number of the test pit locations at depths generally greater than 0.5 -1.0 m. (This included one test pit within the riparian corridor)"*

However, the report concluded that:

> *"The development proposed is not considered to result in exposure of groundwater, or excavations to within close proximity of the groundwater."*

Aboriginal Heritage

The Colebee Release Area has been subject to detailed heritage assessment. In regard to indigenous heritage, the site is identified as being within Nurragingy Aboriginal Land. An Aboriginal Heritage Impact Permit under the National Parks and Wildlife Act 1974 has been lodged with the Office of Environment and Heritage, formerly known as the NSW Department of Environment, Climate Change and Water (DECCW).

On 19 October 2011 Blacktown Council Historical Committee considered a report on the proposed listing on the State Heritage Register of the Colebee and Nurragingy Aboriginal Land Grant. This listing is considered by the DECCW to be largely symbolic and is not intended to adversely impact the development potential of the subject lands.

The historical committee resolved as follows:

> 1. *The Combined Historical Societies Sub-Committee be included as a stakeholder in the consultation process for the development of the Heritage Interpretation Strategy referred to in paragraph 3 of Report SD310117.*
>
> *2. Council refer the offer of Legacy Property, dated 28 September, 2011, Attachment 3 to Report SD310117, to the NSW Office of Environment and Heritage.*
>
> *3. Council lobby the NSW State Government, as a matter of urgency, to enter into negotiations with Legacy Property for the purpose of purchasing the property as detailed on the plan at Attachment C to the Legacy Property letter dated 28 September, 2011 at Attachment 3 to Report SD310117.*
>
> *4. Council take no further action in relation to the Land Grant issue and continue to process Development Applications with any approvals issued to be subject to a condition requiring a Heritage Interpretation Strategy to be submitted to Council.*
>
> *5. It be noted that Mr. Jack Brook and Mrs. S. Lee attended the Historical Committee meeting between 6.35 p.m. and 7.00 p.m.*

The key outcome was the need to prepare a Heritage Interpretation Strategy, This is currently being prepared by the proponent in consultation with local Aboriginal land groups.

3.3.3 How has the planning proposal adequately addressed any social and economic effects?

Mixed Use Area

Social Effects

The planning proposal is considered to have significant positive social effects. The following are the likely outcomes of the proposal:

- The creation of additional employment, both during the construction period, and more importantly, on an ongoing basis once the centre is completed and operational. This includes a number of youth employment opportunities with retail developments generally employing a large number of younger staff. This will be important for the significant and growing young population in the region.

- The development of the Richmond Road site will allow greater convenience and choice for the local population who currently have to undertake a round trip of at least 8 km for their food and grocery shopping.
- The new local centre will support civic cohesion and a sense of identity to this residential development.
- The introduction of a local centre in this location will best support sustainable transport where residents will either be able to walk or not have to incur long car journeys for shopping. The location of the centre at the western portion of the site will capture all residents.
- The location of the centre, in the western portion of the site will avoid the requirement for service vehicles to enter into the residential core of the precinct. This avoids potential noise and safety issues, and thus being firmly within the public interest.
- In terms of broader strategic planning, the optimal implementation of which being in the public interest, developing this portion of the site for residential purposes would be a sub-optimal planning outcome in terms of potential noise issues from Richmond Road, safety issues related to traffic, air quality and overall residential amenity.

Economic

Duane Location IQ undertook and Economic Impact Assessment of the concept for which the proposed rezoning would support. This Assessment investigated the following matters:

Need for the Centre

'Need' or 'Community Need' is a relative concept that relates to the overall wellbeing of a community. A use is needed, for example, if it would, on balance, improve the services and facilities available in a locality. The reasonable demands and expectations of a community are important, therefore, in assessing need.

A number of important factors that relate to need, particularly economic need, include:

1. Population Growth
2. Consumer Trends
3. Supply of retail facilities
4. Impacts on existing retail facilities
5. Location
6. Net community benefits

Population Growth

The growing population based within the Richmond Road main trade area will demand and support a greater range of retail facilities, particularly convenience retail facilities. Until such time as the Marsden Park Town Centre is developed a small convenience retail centre will be supported and is needed by the population at Colebee.

Consumer Trends

The Richmond Road main trade area will contain a large young family market, with a large proportion of households containing couples with dependent children. As such,

there is a strong need for a wider choice of convenience shopping facilities to be provided within close proximity to the homes of residents.

The need for convenience and choice is particularly relevant for the young family population, with many family households now containing two time poor working parents.

Supply of Retail Facilities

Over the past five years, there has been increasing trends towards convenience shopping. This trend has been largely driven by broader social trends and the result being consumers becoming more time poor. These social trends include:

- Longer working hours.
- An increase in the number of women in the labour force.

Time pressures are ranked at the top of the list of issues that consumers face when undertaking their regular food and grocery shopping. As a result of the increasing time pressures that consumers face when it comes to food and grocery shopping, there is growing demand for convenience based shopping centres to meet the needs of local residents. It is important for the planning documents to acknowledge this trend.

The development of the Richmond Road site will allow greater convenience and choice for the local population who currently have to undertake a round trip of at least 8 km for their food and grocery shopping.

Impacts on Existing Retailers

Impacts on other retailers beyond the main trade area will be relatively limited and will not impact on their ability to continue to operate. There are limited implications for any retail stores beyond the trade area as these centres will continue to attract a proportion of the retail floorspace demand of the growing population in the Richmond Road trade area. These centres stand to benefit from market growth over time.

It is concluded that the combination of the substantial positive economic impacts serve to more than offset the limited trading impacts that could be anticipated. Further, the impacts would not threaten the viability of any of these retailers or centres.

Location

The centre is the only neighbourhood centre located in this section of the North West Growth Centre. Refer to Figure 4. A location options analysis was undertaken to identify the best location of the centre in this section of the North West Growth Centre. Refer to Section 1.3.1 for location options analysis. It was found that the centre's proposed location provides most appropriate access for vehicles and pedestrians, provides least conflicts between large vehicles accessing the centre, pedestrians and vehicular traffic for local residents, and provides a logical land use fronting Richmond Road in this location between the MPIP and proposed residential development to the east.

Net Community Benefits (refer to 3.1.3)

The centre provides a net community benefit underpinned by:

- Providing services within a walkable catchment;
- The only neighbourhood centre in this section of the North West Growth Centre, which will provide local services; and
- Provide employment for local community.

Bells Creek Corridor

The planning proposal is considered to have significant positive social effects. The following are the likely outcomes of the proposal:

- The subject land provides a significant visual quality to the area;
- The proposed zone will ensure environmental management objectives are established for the corridor in order to preserve and improve the Bell's Creek riparian corridor.
- As part of the Stage 1 DA and DA2 the riparian corridor to Bells Creek will be revegetated;
- The riparian corridor will achieve a 1 in 100 year flood zone and maintain its drainage function; and
- The proposed shape and extent of the land will not have a negative impact on flooding and drainage in the wider area.

3.4 Section D - State and Commonwealth interests

Mixed Use Area

3.4.1 Is there adequate public infrastructure for the proposal?

This section discusses the provision of utilities and services to the site. Legacy Property engaged Cardno (NSW/ACT) Pty Ltd to undertake civil engineering design, which included utilities and services design and assessment. The report titled, "799 Richmond Road Marsden Park – Development Application Engineering and Water Cycle Management Report – Stage 1" dated 27 July 2010.

Electrical Servicing

The existing area is serviced by an 11kV feeder system from Rooty Hill and Riverstone Zone Substations. Integral Energy has been consulted in relation to electrical supply, and has advised that this system will have sufficient capacity for this proposed development. Supply from this system will involve the extension of the 11kV system into the site to 2-3 padmount substations, from which it will be reticulated through the site via a low voltage system.

Water and Sewer

It is expected that there may be some capacity to obtain supply from the main in Richmond Road as supply solution for the first stage of development. Future stages of the development may be serviced from the water main within Stonecutter's Ridge, which has been extended from the Marayong system.

The first stage of the development may discharge to the STP on Richmond Road as an interim solution. Future stages may require connection to the system in Stonecutters Ridge.

Telecommunications

Telstra was contacted in regards to servicing for broadband. Telstra advised that broadband infrastructure is available in the area, however that a detailed assessment would need to be carried out by Telstra to determine a servicing strategy. Telstra advised that broadband services are being provided to the Stonecutters Ridge development under a commercial agreement.

Gas

A services diagram for the area was obtained from Jemena. The diagram shows a 150mm, 1,050kPa secondary gas main along Richmond Road, fronting the site allowing for gas servicing.

3.4.2 What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

At this stage discussions have been held with the Department of Planning, Blacktown City Council and the RTA with respect to the LEP amendment. No in principle objections have been raised during these discussions.

Bells Creek Corridor

3.4.3 Is there adequate public infrastructure for the proposal?

The proposal will provide adequate space for public infrastructure, including drainage pipes and basins.

3.4.4 What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

At this stage preliminary discussions have been held with the Department of Planning, Blacktown City Council, Office of the Hawkesbury Nepean and the RTA with respect to the LEP amendment. No in principle objections have been raised during these discussions.

4 Part 4 - Community Consultation

Mixed Use Area and Bells Creek Corridor

This Planning Proposal is considered to be a type that falls within the definition of a low impact Planning Proposal and may be adequately exhibited for a period of 14 days. Community Consultation would take place following a Gateway determination made by the Minister for Planning and Infrastructure or his delegates, in accordance with Section 56 and 57 of the *Environmental Planning and Assessment Act 1979*. It is anticipated that public exhibition would include:

- Notification on the Blacktown Council and Department of Planning websites;
- Advertisement in local newspapers that are circulated within the local government area; and
- Notification in writing to adjoining landowners and neighbours, and any other relevant stakeholders.

5 Conclusion

The Planning Proposal has been prepared in accordance with:

- Section 55 of the *Environmental Planning and Assessment Act 1979*, (the Act);
- NSW Department of Planning Guidelines to Preparing a Planning Proposal; and,
- Relevant s.117 Directions.

The relevant lands, which are currently the subject of a Development Application (DA) with Council are proposed to be rezoned as follows:

- Mixed Use Centre (12,417.3m^2)
  - From 2(a) Residential 'A' to 3(b) General Business, under the provisions of *Blacktown Local Environmental Plan 1988*, (BLEP 1988), and
- Bells Creek Corridor
  - From 5(a) Special Uses – General Zone and 2(a) Residential 'A' to:
    - Riparian Corridor land (33,397m^2) – 6(d) Recreation – Environmental Protection, and
    - Drainage land (10,395m^2) – 5(a) Special Uses – General Zone,
- From 5(a) Special Uses – General Zone to:
    - 2(a) Residential 'A' land (11,471 m^2) as per Figure 5 in this report,

in accordance with the provisions of BLEP 1988.

This report provides a full justification of the proposal in line with the Department of Planning and Infrastructure's template for gateway rezonings. The justification demonstrates that:

Mixed Use Area

- There is a demonstrated need for the proposal with the Colebee Release Area being the only North West Sector release without a neighbourhood centre based on a walkable catchment. Duane Location IQ were engaged to test the economic need for the proposal. This assessment demonstrates with the strong population growth in the area there will be the need for such a centre.
- There is full consistency with the strategic planning framework including S117 Planning Directions, the Metropolitan Strategy, the North West Subregional Strategy and Blacktown Council strategies. While no centre was identified for the Colebee Release Area, this was due to the historical timing of the release, which preceded the development of the North West Sector Structure Plan. This planning proposal would bring the Colebee Release Area back into line with the principles development for "neighbourhood centres based on walkable catchments".
- In regard to Environmental, Social and Economic impacts, the following was assessed:
    - Contamination, flora and fauna for the site have been assessed. There is no environmental constraint in regard to these matters that would preclude the proposal.
    - Traffic generation, parking and access. John Coady Consulting undertook a Traffic and Parking Study for the proposal. There would be no unacceptable impact on local traffic conditions and access arrangement are considered appropriate to the site.

- Social impacts are considered to be positive with a range of benefits including local retail and commercial servicing, employment generation and
- Economic impacts as assessed by Dune Location IQ are considered to be positive with the centre meeting a demonstrated demand with minimal impacts on other centres. Importantly, the centre being focused into the development is forecast to service the Colebee Release area. It's viability is not contingent on passing trade.

Bells Creek Corridor

- The proposal will have a significant community benefit as the corridor provides a regional drainage function. The proposed shape and extent of the area will not have an impact on the function of corridor or generate any adverse impacts. The zone objectives, design and management of this section of the corridor will set a benchmark for the design and management of the entire corridor;
- The zone for the riparian corridor will ensure that environmental management objectives are reinforced in the corridor and have a positive impact on surrounding lands as well as wider environmental benefits to the community;
- The proposed zones and future works will not have an adverse environmental impact and enhance the environmental and ecological value of the subject land;
- The proposal is consistent with the Growth Centres approach to land use zones and planning outcomes; and
- Maintain the corridor in single ownership ensuring that better environmental outcomes can be achieved.

Further, at this stage preliminary discussions have been held with the Department of Planning, Blacktown City Council, Office of the Hawkesbury Nepean and the RTA with respect to the LEP amendment. No in principle objections have been raised during these discussions.

Given the above it is considered that the proposal is well justified and should be approved.

Appendix 1 – Economic Impact Assessment

MECONE

Lot 1 – DA/10/1631, Marsden Park

Economic Impact Assessment

Prepared for Legacy Property

October 2010

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INTRODUCTION

This report presents an independent assessment of the demand and market scope for a convenience retail centre at Marsden Park in Outer North-West Sydney. The report refers to the proposed Lot 1 as described in DA10/1631, currently before Council for assessment. The report also considers the likely economic impacts that would result from the proposed development.

The report is structured and presented in five sections as follows:

- **Section 1** details the location of the proposed Marsden Park site and discusses the context of the proposed centre within the current planning environment. The proposed development scheme is also reviewed.
- **Section 2** details the trade area likely to be served by retail facilities at the site, including current and projected population and retail spending levels over the period to 2026.
- **Section 3** provides an overview of the retail structure within the surrounding region.
- **Section 4** outlines our assessment of the potential for retail floorspace in the defined trade area and then presents an economic impact assessment. Likely trading impacts on other retailers throughout the surrounding region are considered, as are the employment and other economic impacts, both positive and negative, of the proposal.
- **Section 5** outlines the key findings of the analysis.

1 SITE LOCATION AND PROPOSED DEVELOPMENT

This section of the report reviews the regional and local context of the proposed development at Marsden Park in Outer North-West Sydney and provides a review of the proposed development scheme.

1.1 Regional and Local Context

i. The suburb of Marsden Park is situated in Sydney's North-West Growth Centre, some 50 km west of the Sydney Central Business District (CBD) (refer Map 1.1).

ii. The proposed development is planned to be situated adjacent to Richmond Road, a major north-south arterial route throughout the locality, linking residents of Marsden Park to Blacktown, Parramatta and Sydney CBD.

iii. Richmond Road is planned to be progressively upgraded over the next 25-30 years to a four-lane arterial with major four way signalised intersections at Townson Road and South Street. Richmond Road will also allow for the future construction of a further two lane dedicated bus-way.

iv. The site is also in close proximity to the Westlink (M7), a major carriageway throughout the region which links to the Hills Motorway (M2) in the north and to the South Western Motorway (M5) in the south.

v. The proposed Lot 1 as described in DA10/1631 site forms part of the Colebee residential precinct. Upon completion, this estate is planned to include up to 1,100 detached residential dwellings with sales of new homes having already commenced in the Stonecutters Ridge development. Immediately to the north of the site, an east-west road has been proposed which will link with Richmond Road to the west and the Colebee Precinct to the east.

MAP 1.1 – MARSDEN PARK REGIONAL CONTEXT

Map produced by Duane Location IQ using MapInfo Pro Australia Pty Ltd and related data sets.

1.2 Proposed Development

i. Table 1.1 outlines the proposed development at the proposed Lot 1 as described in DA10/1631 at Marsden Park. Figure 1.1 illustrates the proposed development scheme. The key points to note include:

- The total development is proposed to comprise some 4,230 sq.m of floorspace, including 2,990 sq.m of retail floorspace and 1,240 sq.m of commercial floorspace.
- The major tenant will be a supermarket of 1,500 sq.m.
- The commercial floorspace is proposed on an upper level above the retail space at ground level.

ii. Overall, 155 car parking spaces are proposed to be provided at the site.

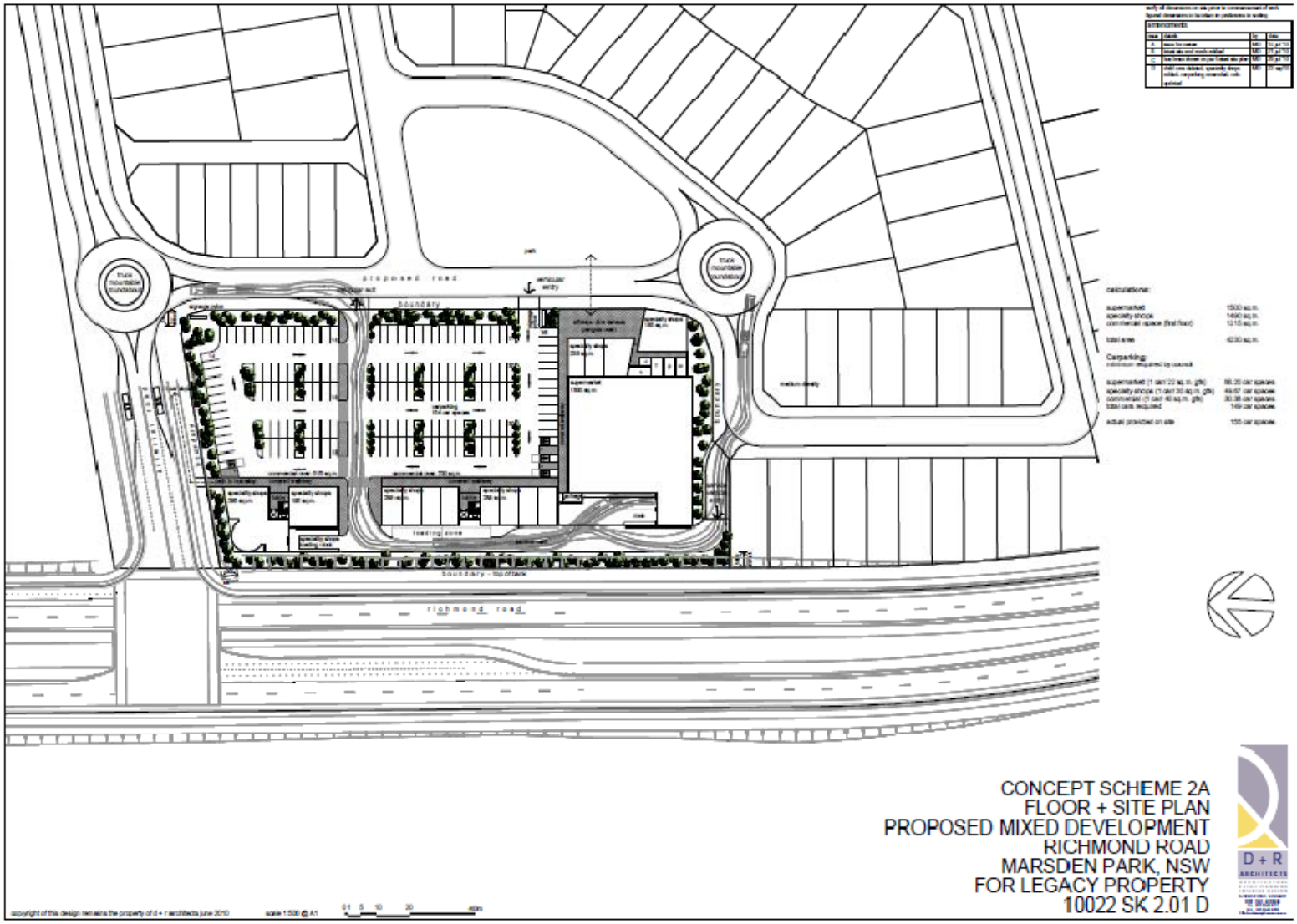
iii. The centre will be simply designed with the supermarket and specialty shops facing the at-grade car parking.

iv. Access to the site is proposed from two points along a new road internal within the Marsden Park site. Direct access to the site will not be provided from Richmond Road, limiting the attractiveness of the development to passing traffic and a broader regional market.

TABLE 1.1 – MARSDEN PARK PROPOSED DEVELOPMENT

Tenant/ Category	GLA (sq.m)	% of Total
Supermarket	1,500	35.5%
Specialty Stores	1,490	35.2%
Total Centre	**2,990**	**70.7%**
Commercial	1,240	29.3%
Total Property	**4,230**	**100.0%**

FIGURE 1.1 – MARSDEN PARK INDICATIVE LAYOUT



1.3 Planning Environment

i. In December 2005 the New South Wales Government released the Metropolitan Strategy for Sydney, titled *City of Cities – A Plan for Sydney's Future*. The strategy outlined the objectives and actions for Sydney's growth to 2031. A discussion paper reviewing the strategy has recently been released, entitled *Sydney Towards 2036*, which provides a comprehensive review of the Metropolitan Strategy and outlines further challenges facing Sydney over the next 25 years.

ii. In order to localise the objectives outlined in the Metropolitan Strategy, the New South Wales Government has released eleven sub-regional planning documents to aid state and local government in the long term planning of individual areas or regions.

iii. The suburb of Marsden Park lies within the defined *North West Sub-region*, which includes the Blacktown council area.

iv. The North-West Growth Centre is a greenfield area which has been designated by the New South Wales Government for future urban development (refer to Map 1.2).

v. According to the Structure Plan for the North-West Growth Centre, the area contains approximately 10,000 hectares and lies within the LGA boundaries of Baulkham Hills, Blacktown and Hawkesbury.

vi. The North-West Growth Centre has been divided into 16 precincts which will be progressively released over the next 25-30 years and are planned to include up to 70,000 new homes.

vii. The precincts that are of most relevance to the proposed development at Marsden Park include:

- **Marsden Park Precinct**: The North-West Growth Centre Structure Plan indicates that upon completion this precinct is proposed to include 11,000 new dwellings, accommodating some 30,800 new residents. The precinct will also feature a major Town Centre which is planned to include 30,000 -

35,000 sq.m of retail floorspace and incorporate two supermarkets, a discount department store as well as a significant provision of retail speciality stores. A number of other knowledge and service based businesses and community and cultural centres are also likely to be provided (refer to Figure 1.2).

Approximately 106.7 hectares of land in the Marsden Park precinct is in the process of being released following a review of the precinct boundaries in 2008-2009, which enabled this land to be planned in conjunction with the Precinct Planning for the Marsden Park Industrial Precinct. This release will potentially accommodate around 3,200 residents in some 1,100 dwellings

- **Marsden Park Industrial Precinct**: This precinct was released in June 2008 under the Precinct Acceleration Protocol. This major employment hub for the North-West will yield 551 hectares of urban uses supporting up to 10,000 employees. Draft plans for Marsden Park Industrial Precinct include 205 hectares of land for warehousing and distribution, a 67 hectare business park, 36 hectares for bulky goods retailing and 92 hectares of conservation land and open space (refer to Figure 1.3).

- **Colebee Precinct**: One of the first release precincts in the North-West Growth Centre, Colebee is planned include some 1,100 detached dwellings. Sales of new homes have already commenced in the Stonecutters Ridge development which also includes an 18 course golf course.

- **Schofields Precinct**: One of the second release precincts in the North-West Growth Centre, Schofields is approximately 424 hectares and is expected to accommodate around 14,000 residents in 5,000 dwellings. The Precinct will be supported by a new Town Centre in the Alex Avenue Precinct. The Schofields Precinct currently consists of a mix of urban areas, farming lands and the Schofields Aerodrome site (refer to Figures 1.4 and 1.5).

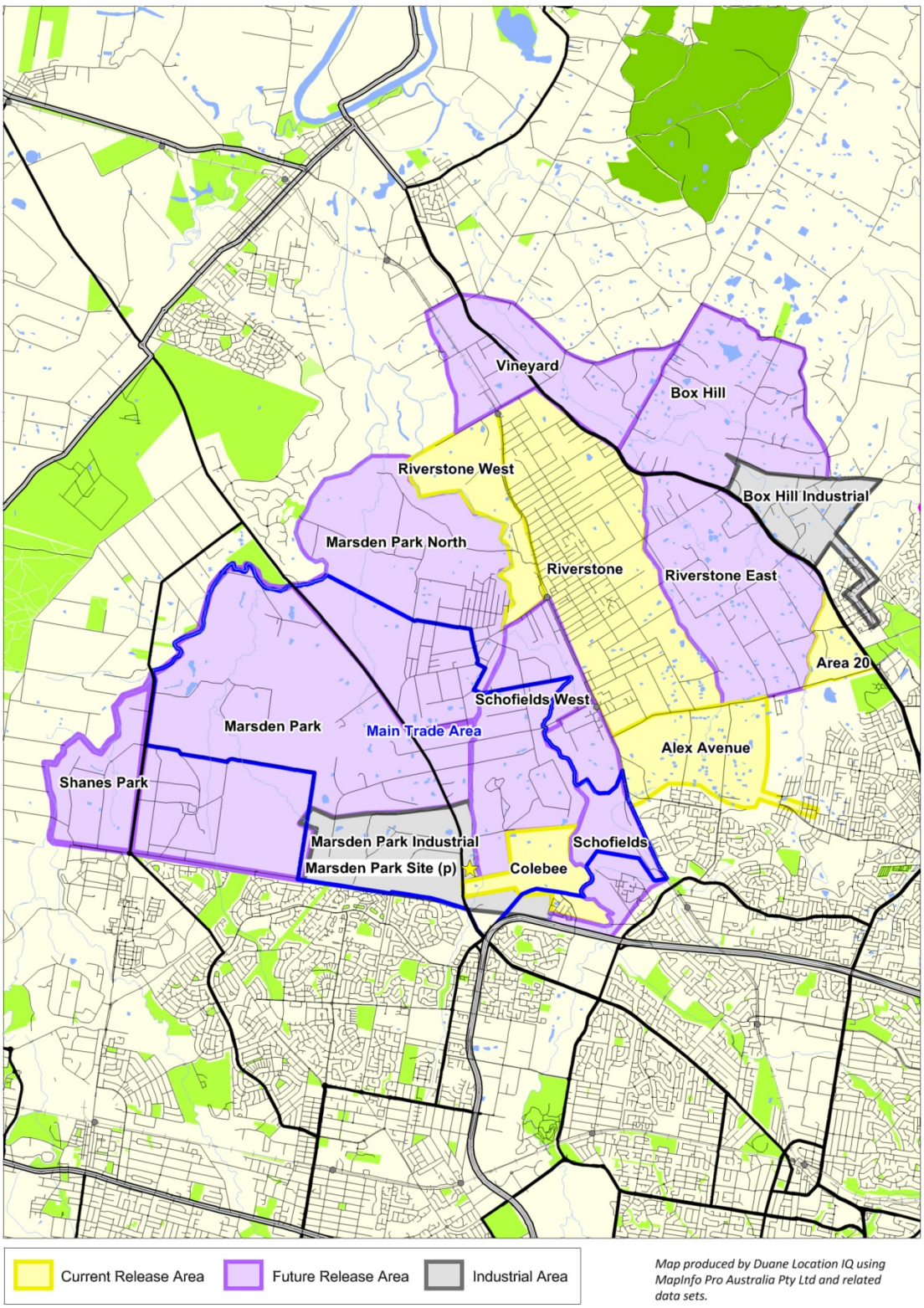
- **Schofields West Precinct**: The North-West Growth Centre Structure Plan indicates that upon completion this precinct is proposed to include 2,000 new dwellings, accommodating some 5,600 new residents and two to three neighbourhood centres.

vi. According to the Structure Plan for the North-West Growth Centres, the following facilities are planned within the Marsden Park Region:

- Marsden Town Centre, which is planned to be anchored by two supermarkets, a discount department store as well as a range of speciality stores, totalling up to 30,000 sq.m of retail floorspace. A variety of other knowledge and service-based businesses, in addition to community and cultural facilities are also likely to be provided at the Town Centre.

- A number of commercial and office developments, including apartments and other mixed use activities are planned to be provided along Richmond Road. Developments along the southern segment of Richmond Road adjoining the large industrial area are likely to accommodate bulky goods and related highway-oriented commercial activities, as well as offices and service businesses supporting the adjoining industrial estate. Developments along the northern segment of Richmond Road will predominately accommodate offices and knowledge or service-based businesses, particularly in the area of Marsden Park Town Centre.

MAP 1.1 – NORTH-WEST GROWTH CENTRE



Map produced by Duane Location IQ using MapInfo Pro Australia Pty Ltd and related data sets.

FIGURE 1.2 – MARSDEN PARK DRAFT STRUCTURE PLAN

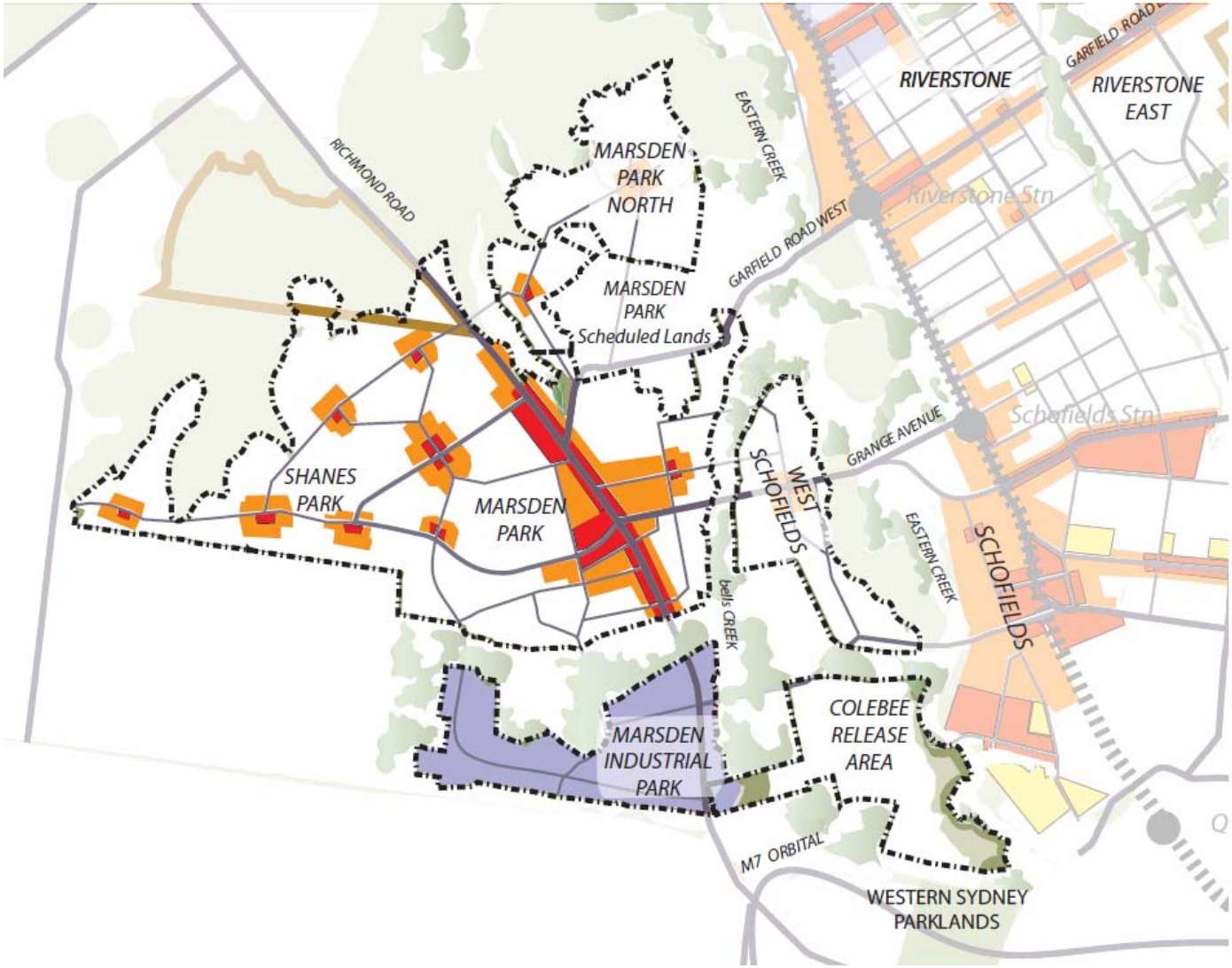


FIGURE 1.3 – MARSDEN PARK INDUSTRIAL PRECINCT INDICATIVE LAYOUT PLAN

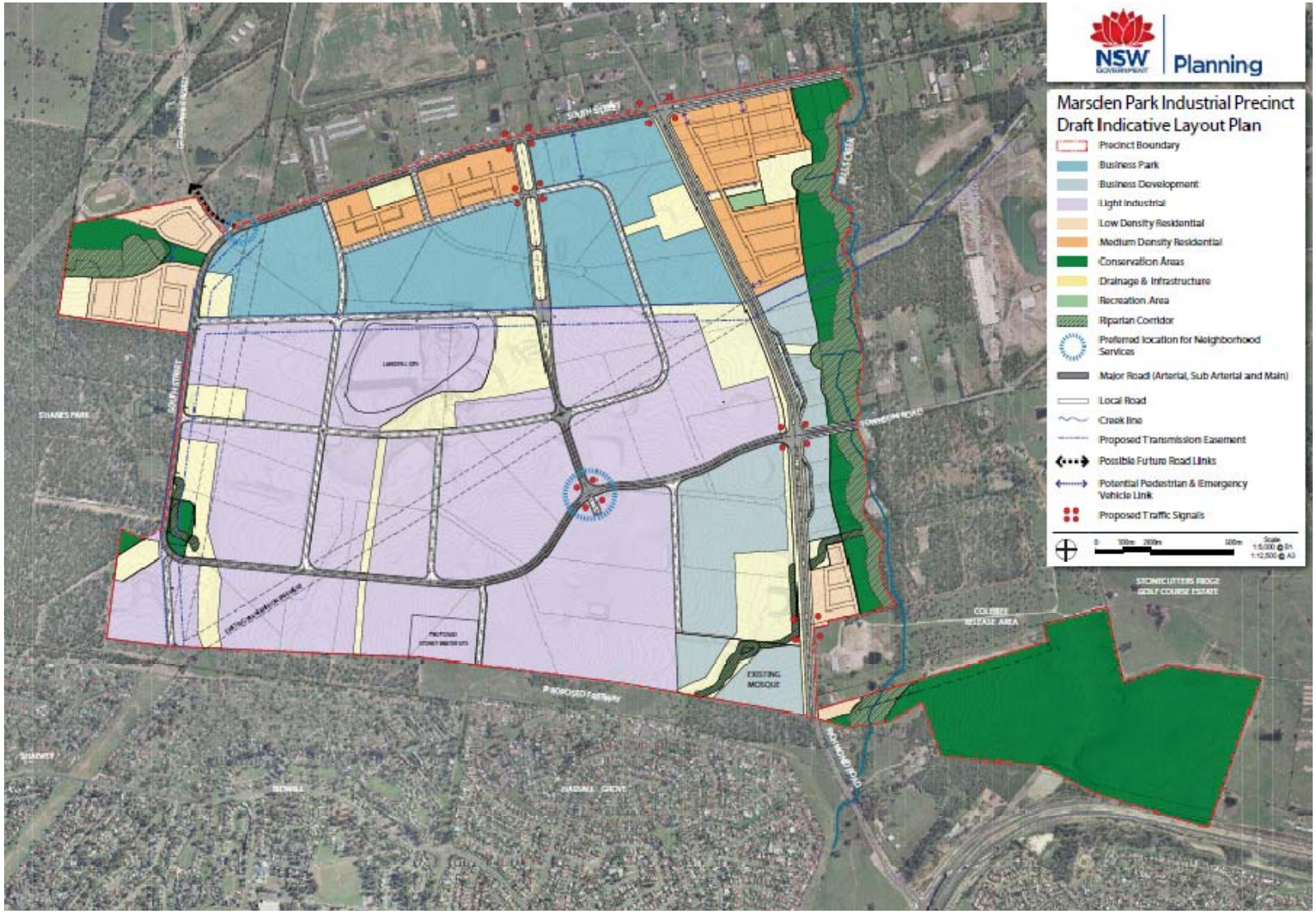


FIGURE 1.4 – SCHOFIELDS DRAFT STRUCTURE PLAN

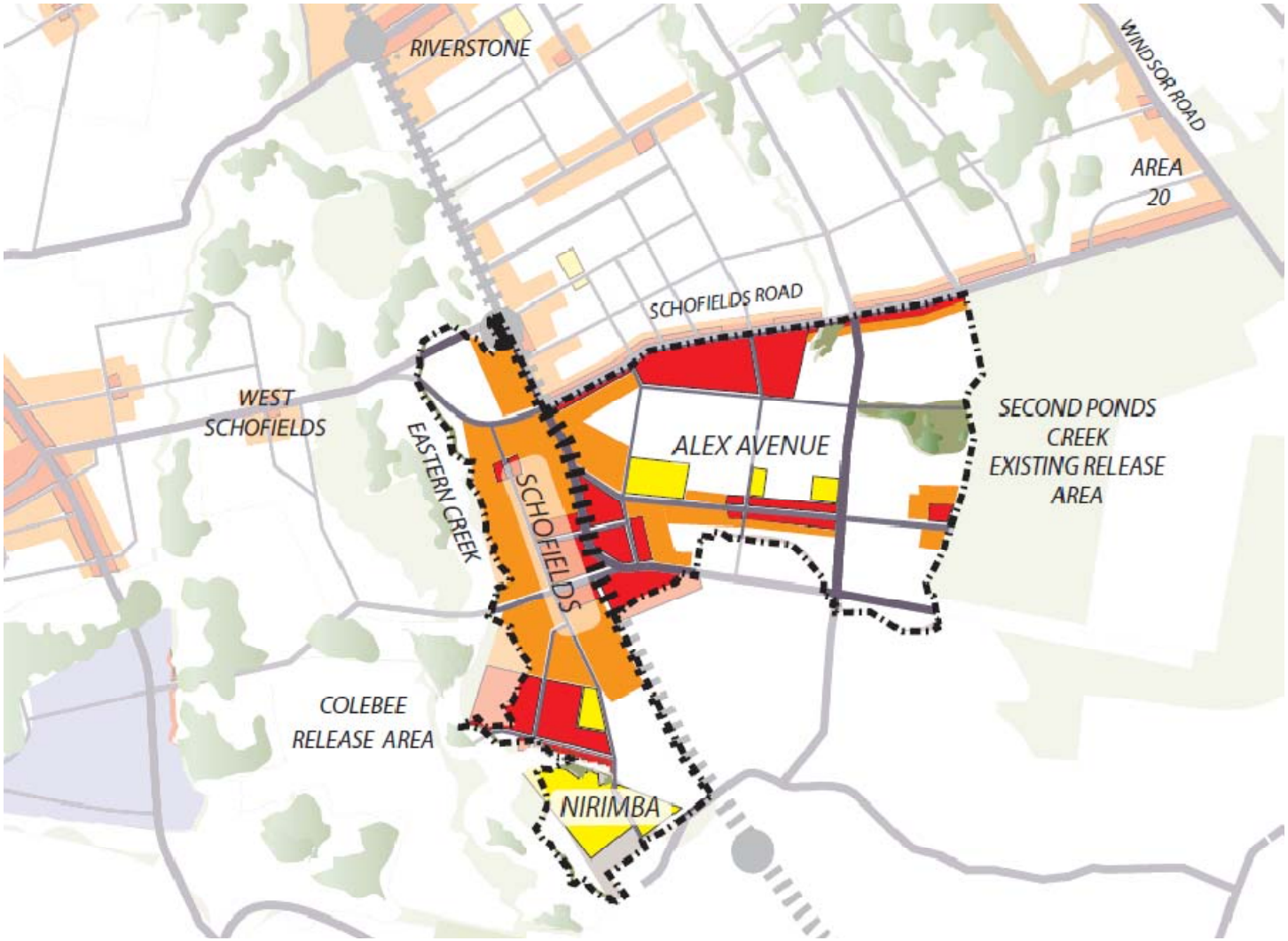
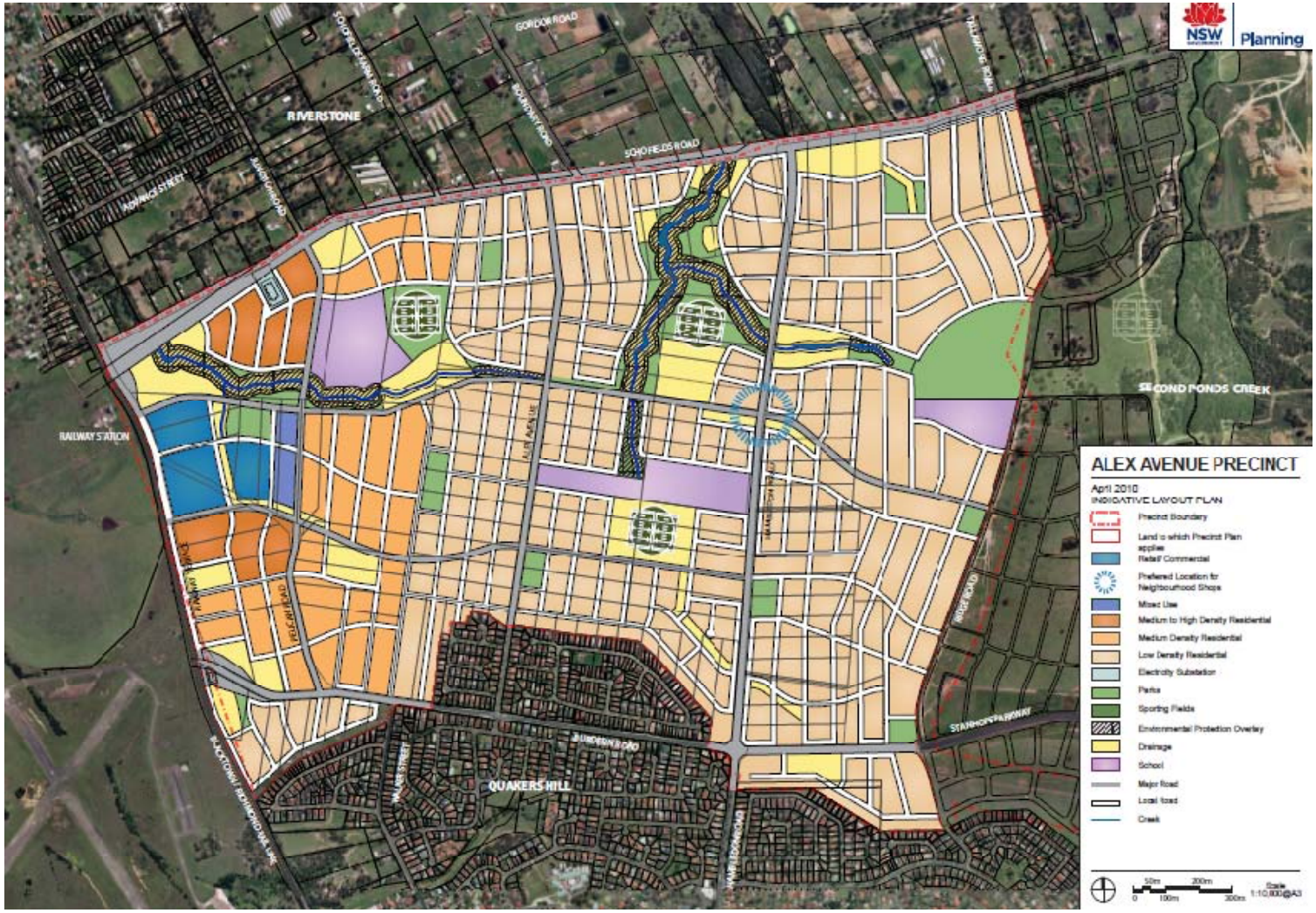


FIGURE 1.5 – ALEX AVENUE PRECINCT INDICATIVE LAYOUT PLAN



2 TRADE AREA ANALYSIS

This section of the report examines the trade area that is likely to be served by the proposed development at Marsden Park, including current and projected population and retail spending levels. An overview of the socio-economic profile of the trade area population is also provided.

2.1 Trade Area Definition

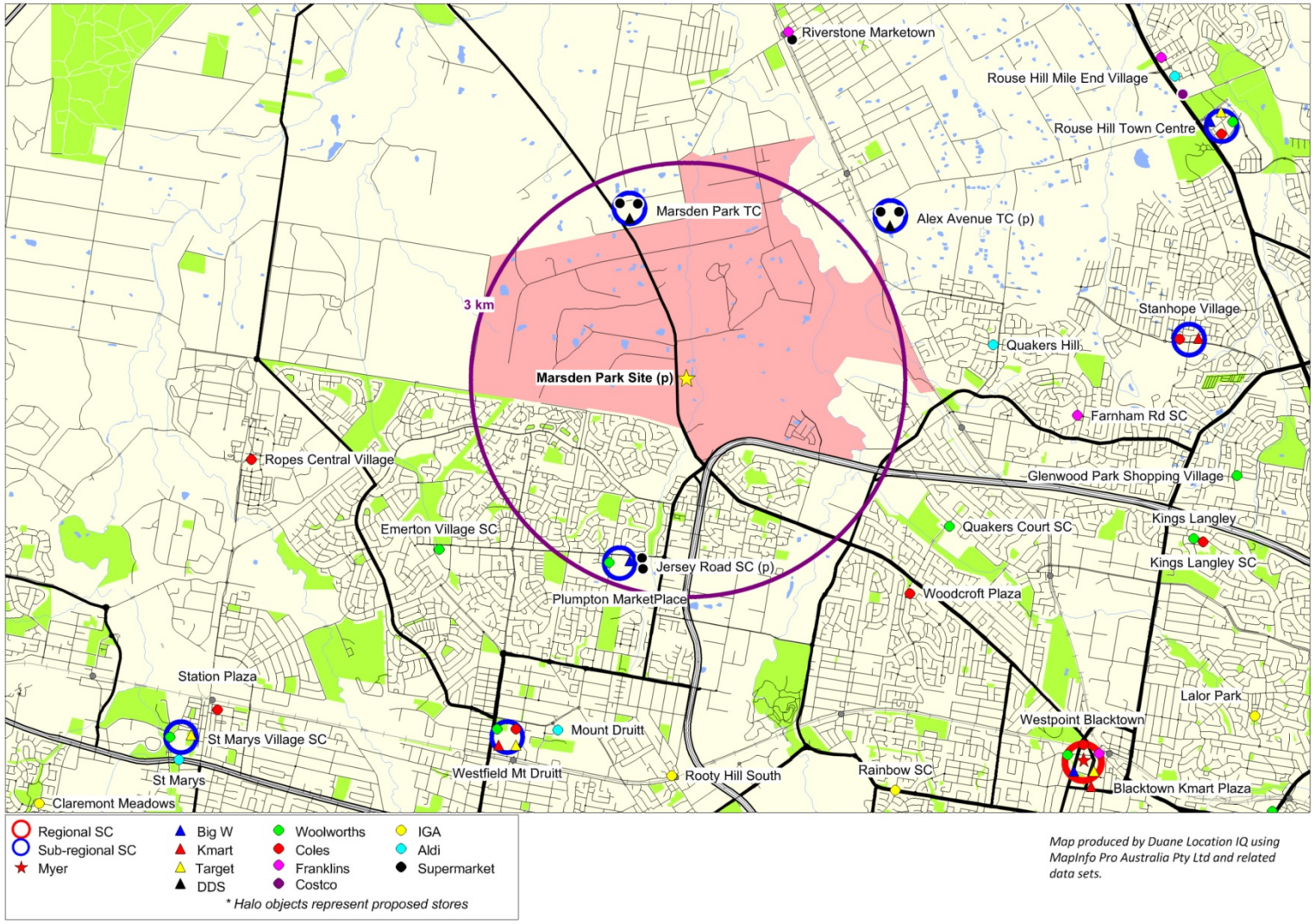
i. The trade area for the retail component of the proposed development anchored by a small supermarket would only serve a small local area. The trade area has been defined taking into consideration the following key considerations:

- The scale and composition of the proposal.
- The provision of existing and proposed retail facilities throughout the region.
- Regional and local accessibility by private and public transport.
- The pattern of urban development.
- Significant physical barriers.

ii. Map 2.1 illustrates the defined trade area for the proposed development at Marsden Park. The main trade area comprises the area within 2-3 km of the site including the Colebee residential area and the Marsden Park industrial area. The trade area is limited by the M2 to the south, non-urban areas and proposed retail facilities to the north and natural breaks to the east and west.

iii. The site would be highly accessible for the immediate surrounding population, and would be a walk-in facility for many residents of Colebee estate and also homebound travel for residents into the Colebee estate.

MAP 2.1 – MARSDEN PARK MAIN TRADE AREA



2.2 Trade Area Population

i. Table 2.1 details the current and projected trade area population levels by sector for the Marsden Park main trade area.

ii. The current and projected population levels are based on the following:

- The 2006 Census of Population and Housing undertaken by the Australian Bureau of Statistics (ABS).
- New dwelling approval statistics sourced from the ABS over the period 2007 to 2009.
- Information obtained from the New South Wales Government Growth Centre Commission.
- Population projections prepared at a small area level by Forecast id for the City of Blacktown.
- Investigations by this office into new residential developments in the region.

iii. The current main trade area population is estimated at 1,200. This represents an increase of 4.7% since the 2006 Census of Population and Housing.

iv. The major land available to accommodate population growth in the short term is the Colebee residential area. The major residential developments in this release area include:

- Stonecutters Ridge is the major residential estate within the trade area, with the potential to accommodate 840 homesites.
- In addition, the developers of the Marsden Park site are also proposing some 305 lots for development.

v. The main trade area population is projected to increase to 6,100 by 2026. This represents an average annual growth rate of around 300 persons.

TABLE 2.1 – MAIN TRADE AREA POPULATION, 2006-2026

Trade Area Sector	Estimated Resident Population	Forecast Population				
	2006	2010	2013	2016	2021	2026
Main Trade Area	1,000	1,200	2,100	3,450	5,100	6,100
		Average Annual Change (No.)				
		2006-2010	2010-2013	2013-2016	2016-2021	2021-2026
Main Trade Area		50	300	450	330	200
		Average Annual Change (%)				
		2006-2010	2010-2013	2013-2016	2016-2021	2021-2026
Main Trade Area		4.7%	20.5%	18.0%	8.1%	3.6%

**as at June*
Sources : ABS; Forecast.id

2.3 Socio-Economic Profile

i. The socio-economic profile of the Marsden Park main trade area population is based on the latest 2006 Census of Population and Housing. There were only a limited number of residents within the trade area at that time, with the major residential development in Colebee yet to begin.

ii. Future residents of the trade area would be expected to have a profile consisting of young families, which is typical of an outer suburban area, together with higher household incomes, reflecting the upper end buyers being targeting for the Stonecutters Ridge estate in particular.

iii. Table 2.2 and Chart 2.1 provide a detailed overview of the socio-economic profile of main trade area population as at 2006. Key points to note include:

- Residents of the trade area are younger than the benchmark, with an average age of 32.1 years.
- Residents earn below average incomes on a per capita basis and per household basis.

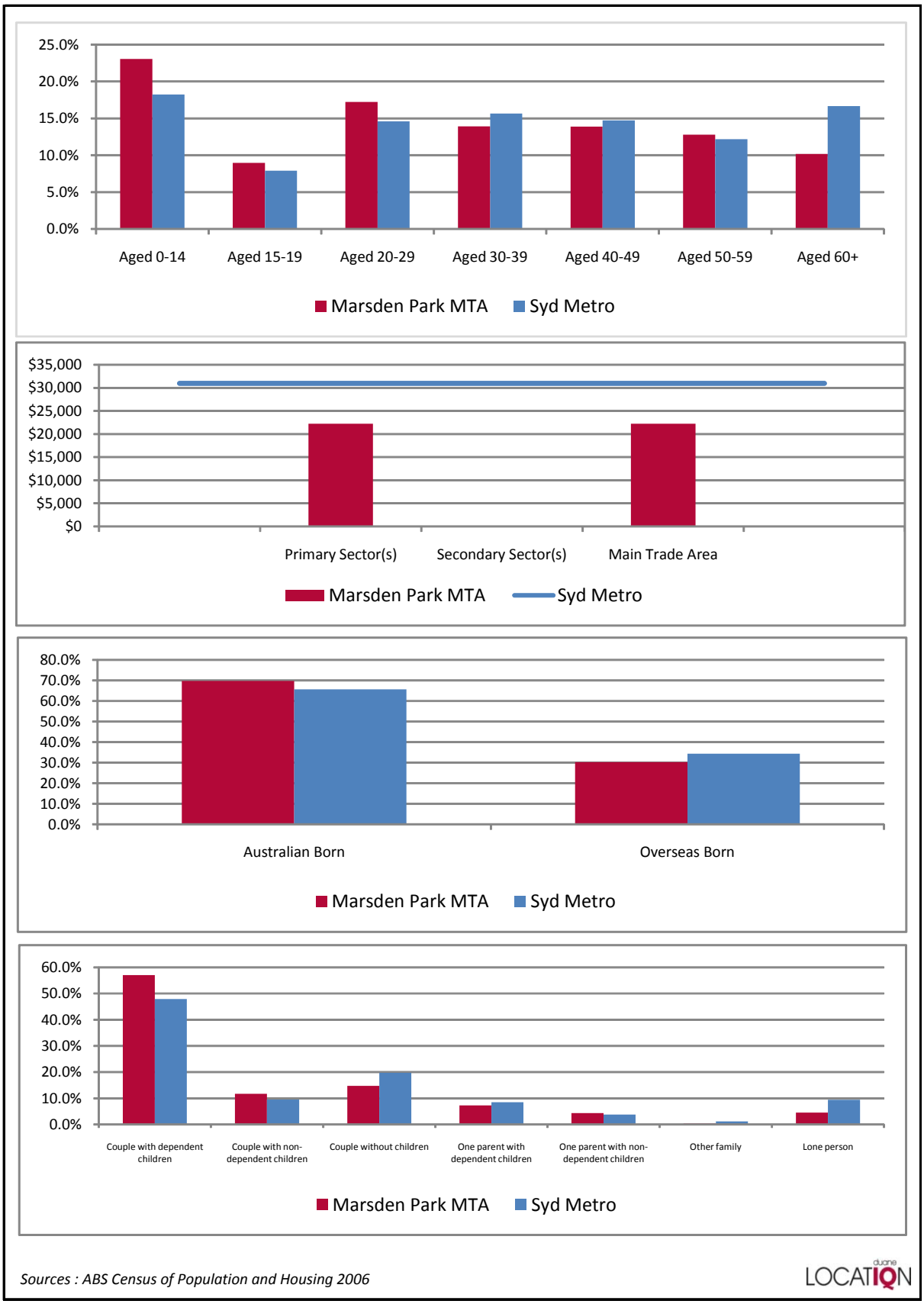
- The level of home ownership in the trade area is higher than the respective benchmark.
- The trade area population is predominately Australian born.
- The household structure of trade area residents include a higher proportion of households consisting of couples with children (i.e. traditional families).

TABLE 2.2 – SOCIO-ECONOMIC PROFILE, 2006 CENSUS

Characteristics	Main TA	Syd Metro Average
Average Per Capita Income	$22,260	$30,938
Per Capita Income Variation	-28.0%	n.a.
Average Household Income	$71,757	$82,316
Household Income Variation	-12.8%	n.a.
Average Household Size	3.2	2.7
Age Distribution (% of Pop'n)		
Aged 0-14	23.1%	18.2%
Aged 15-19	9.0%	7.9%
Aged 20-29	17.2%	14.6%
Aged 30-39	13.9%	15.6%
Aged 40-49	13.9%	14.7%
Aged 50-59	12.8%	12.2%
Aged 60+	10.2%	16.7%
Average Age	32.1	36.6
Housing Status (% of H'holds)		
Owner/Purchaser	76.5%	67.5%
Renter	23.5%	32.5%
Birthplace (% of Pop'n)		
Australian Born	69.8%	65.6%
Overseas Born	30.2%	34.4%
• Asia	12.4%	13.0%
• Europe	10.3%	11.6%
• Other	7.5%	9.8%
Family Type (% of Pop'n)		
Couple with dep't children	57.0%	47.9%
Couple with non-dep't child.	11.8%	9.5%
Couple without children	14.8%	19.7%
Single with dep't child.	7.3%	8.5%
Single with non-dep't child.	4.3%	3.7%
Other family	0.4%	1.2%
Lone person	4.5%	9.4%

Sources : ABS Census of Population and Housing 2006

CHART 2.1 – SOCIO-ECONOMIC PROFILE, 2006 CENSUS



Sources : ABS Census of Population and Housing 2006

2.4 Trade Area Retail Expenditure Capacity

i. The estimated retail expenditure capacity of the Marsden Park main trade area population is based on information sourced from Market Data Systems (MDS). MDS utilises a detailed micro-simulation model of household expenditure behaviour for all residents of Australia.

ii. The MDS model takes into account information from a wide variety of sources, including the regular ABS Household Expenditure Survey, National Accounts Data, Census Data and other information.

iii. In New South Wales, Victoria and Queensland, the MarketInfo estimates of retail spending that are prepared independently by MDS are commonly used by all parties in Economic Impact Assessments. MarketInfo estimates used in this analysis are based on the 2009 release (July 2010), benchmarked against the latest National Accounts Data released by the Australian Bureau of Statistics (ABS).

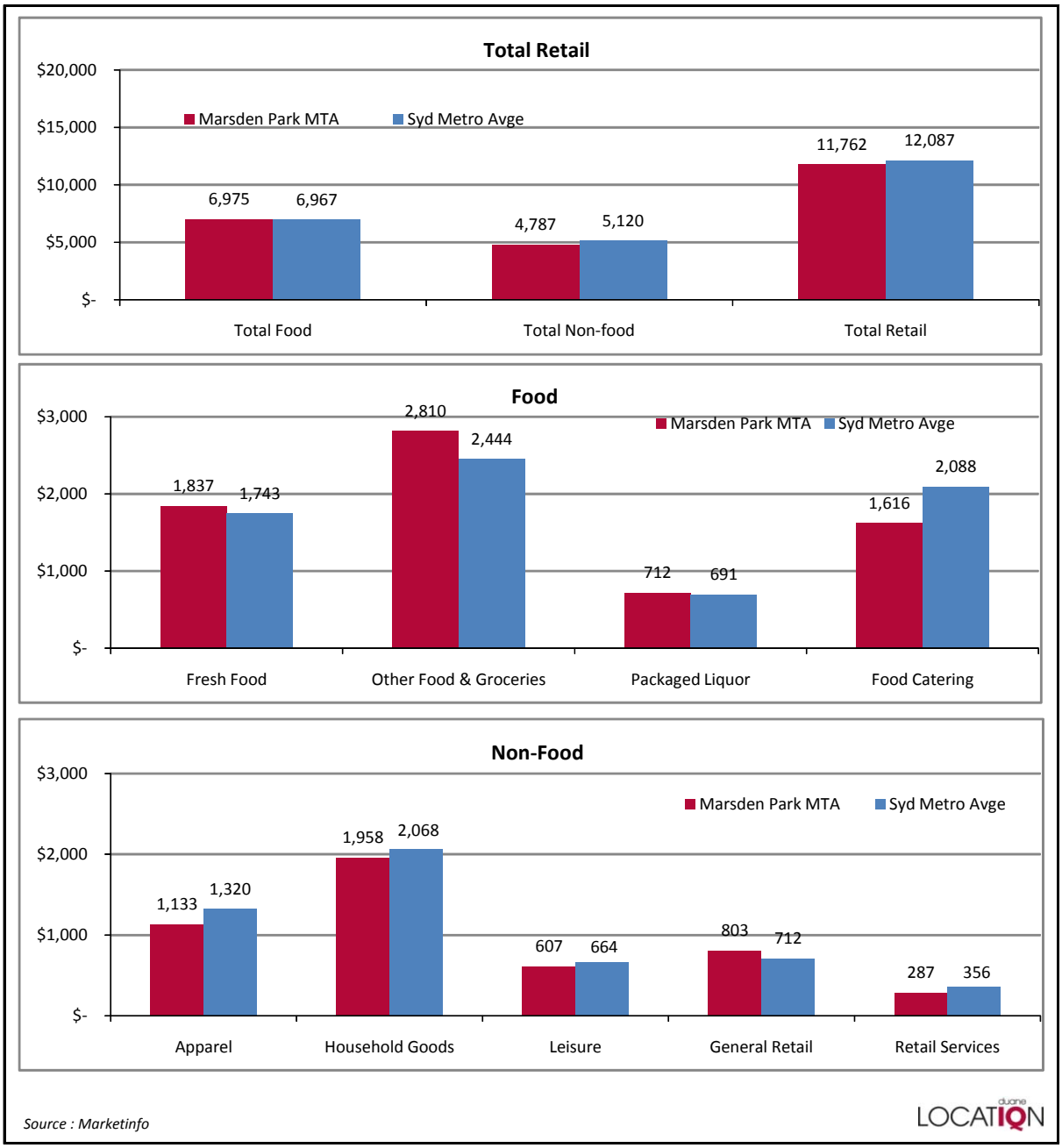
iv. Chart 2.2 outlines the retail spending levels for the Marsden Park main trade area population on a per person basis and compares this with the Sydney metropolitan average. Overall, spending per person in the proposed Marsden Park main trade area is slightly lower than the benchmark.

v. Table 2.3 outlines the retail expenditure levels generated by the main trade area population. The total retail expenditure of the Marsden Park main trade area population is currently estimated at $13.8 million. This level is projected to increase at an average annual rate of around 11.8% to $82.6 million by 2026. All figures presented in this report are in constant dollars and include GST.

vi. Projected growth in the retail spending market of 11.8% for the Marsden Park main trade area takes into account the following:

- Real growth in retail spending per capita of 1.0% annually over the period to 2026.
- Resident trade area population growth, projected at around 10.8% per annum.

CHART 2.2 – MAIN TRADE AREA RETAIL EXPENDITURE PER PERSON, 2009/10



Source : Marketinfo

TABLE 2.3 – MAIN TRADE AREA RETAIL EXPENDITURE, 2010-26

Y/E June	Main TA
2010	13.8
2011	15.6
2012	19.0
2013	23.2
2014	27.9
2015	33.3
2016	39.7
2017	45.2
2018	49.4
2019	54.0
2020	58.9
2021	64.4
2022	68.8
2023	72.0
2024	75.4
2025	78.9
2026	82.6
Expenditure Growth	
2010-2013	9.4
2013-2016	16.5
2016-2021	24.7
2021-2026	18.3
2010-2026	68.8
Average Annual Growth Rate	
2010-2013	18.9%
2013-2016	19.6%
2016-2021	10.2%
2021-2026	5.1%
2010-2026	11.8%

**Constant 2009/10 dollars & Including GST*
Source : Marketinfo

3 COMPETITIVE STRUCTURE

This section of the report provides a summary of the existing and proposed competitive developments in the surrounding region.

i. Discussions with Council indicate that the retail hierarchy for the City of Blacktown is defined in the Commercial Centres Study - The City of Blacktown, prepared by Leyshon Consulting Pty Ltd. It is understood that the retail hierarchy is described as follows:

- Sub-regional Centres
- Districts Centres
- Large Neighbourhood Centres
- Small Neighbourhood Centres

ii. As described in the Blacktown Development Control Plan 2006:

> *"Of the existing and proposed business centres in the City of Blacktown, 2 are sub-regional centres (Blacktown CBD and Mount Druitt Town Centre) and 5 are district centres (Seven Hills, Plumpton and the proposed centre at Parklea and the proposed expanded centre at Quakers Hill and Riverstone). Other centres serve local retail and commercial needs to varying degrees."*

iii. Retail facilities in Outer South-West Sydney surrounding the Marsden Park site form a typical retail hierarchy including:

- Regional shopping facilities at Blacktown.
- A sub-regional shopping centre at Plumpton.
- A number of supermarkets and supermarket based centres located to serve the surrounding population.

iv. Map 2.1 highlights the key locations of retail facilities throughout this part of Sydney, with Table 3.1 presenting a summary of these facilities.

TABLE 3.1 – COMPETITIVE CENTRES

Centre	Retail GLA (sq.m)	**Anchor Tenants**	Dist. From Richmond Rd Centre (km)
Regional Shopping Centres			
Blacktown	*72,300*		*8.2*
• Westpoint Blacktown	64,300	Myer (10,648), Big W (8,418), Target (7,097), Woolworths (4,456), Coles (4,128), Franklins (1,873)	
• Blacktown Kmart Plaza	8,000	Kmart (8,000)	
Sub-regional Shopping Centres			
Plumpton Marketplace	16,000	Big W (6,923), Woolworths (3,980)	4.0
Mount Druitt	*60,500*		*7.4*
• Westfield Mount Druitt	60,500	Kmart (8,371), Target (7,281), Woolworths (3,998), Coles (3,702)	
• Remainder		Aldi (1,350)	
Supermarket Based Shopping Centres			
Woodcroft Plaza	5,000	Coles (2,646)	4.8
Quakers Court SC	5,100	Woolworths (3,844)	5.4
Rooty Hill South	2,500	IGA (700)	5.6
Emerton Village SC	8,400	Woolworths (2,358)	5.8
Riverstone Marketown	2,300	Franklins (1,340)	6.9

Source : Australian Shopping Centre Council Database - February 2010

3.1 Regional Shopping Centres

i. A regional shopping centre is anchored by at least one department store, namely Myer or David Jones. The Blacktown Central Business Area (CBA), located around 8 km south-east of the proposed site, currently provides the regional shopping facilities for this part of Outer North-West Sydney.

ii. Westpoint Blacktown is based on a Myer department store, Big W and Target discount department stores, Woolworths, Coles and Franklins supermarkets and some 320 specialty shops over four levels. The centre encompasses 64,333 sq.m of retail floorspace and also includes a significant entertainment precinct anchored by a cinema complex and ten pin bowling. Total centre sales are in the order of $428 million (Big Guns 2010).

iii. Also within the Blacktown CBA there is a free-standing Kmart discount department store and a provision of retail and non-retail specialty shops that are provided along Main Street and Flushcombe Road.

iv. The Blacktown CBA is the major retail destination in this part of Sydney to the west of Parramatta and to the east of Penrith.

v. The centre serves a broad region throughout north-western Sydney but would not serve the convenience needs of the Marsden Park trade area.

3.2 Sub-Regional Shopping Centres

i. Sub-regional shopping centres are anchored by at least one discount department store. Plumpton Marketplace is the closest existing sub-regional centre to the proposed site.

ii. Plumpton MarketPlace encompasses 16,050 sq.m of retail floorspace and is based on a Big W discount department store and a Woolworths supermarket of 3,980 sq.m. Plumpton MarketPlace also includes some 60 specialty shops over a single level. Total centre sales for Plumpton MarketPlace are in the order of $145 million (Mini Guns 2009).

iii. There is an application for a centre of 13,500 sq.m, including two supermarkets, adjacent to Plumpton Marketplace.

iv. Plumpton is likely to attract some food and non-food spending from the defined Marsden Park trade area, including for weekly supermarket shopping. The centre, however, is not well positioned to serve the daily top-up requirements of Marsden Park trade area residents.

3.3 Supermarket Based Centres

i. A number of supermarkets and supermarket based centres are provided within the Outer North-West Sydney region. Each of these centres are more than 5 km from the proposed site, separated by either the M2 motorway or the railway network. As such these centres are not conveniently located to serve the top-up food and grocery needs of the existing and future Marsden Park main trade area population.

ii. The closest facilities to the proposed site at Marsden Park include:

- Woodcroft Plaza, including a Coles supermarket of 2,646 sq.m.
- Quakers Court Shopping Centre which is anchored by a Woolworths supermarket of 1,800 sq.m.
- Riverstone Marketplace anchored by Franklins, 7 km, north-east of the proposed site. This centre is proposed for expansion including a larger second supermarket. The development application has been deferred at this stage.

3.4 Proposed Retail Developments

i. Figure 1.2 previously highlighted the Marsden Park Draft Structure Plan, indicating the potential location of retail facilities in the area.

ii. The major retail proposal is the Marsden Park Town Centre which is designated to include two supermarkets, a discount department store as well as a range of speciality stores, totalling up to 30,000 sq.m of retail floorspace. A variety of other knowledge and service-based businesses, in addition to community and cultural facilities are also likely to be provided at the Town Centre.

iii. There are also a number of smaller local retail centres identified in the Draft Structure Plan but with none identified in the southern area around the proposed site at Marsden Park to serve the Colebee estate and Marsden Park industrial area.

iv. The previous Figure 1.4 provides a layout plan for the Marsden Park industrial area which also highlights that a Local Centre was not designated to serve any future

workers as well as residents in some of the high density residential areas in this precinct.

v. There was previously a proposal for local shopping facilities as part of the Stonecutters Estate at Colebee, near the Golf clubhouse, however, this has not and, we understand, will not proceed.

3.5 Summary

i. Overall, the proposed development at Marsden Park is well positioned to serve both the existing and future population in the immediate surrounding areas.

ii. A number of retail centres currently exist within the region, however, they are a substantial distance from the proposed site (over 4 km) and are separated by barriers such as the Motorway and railway line. These centres are not well positioned to serve the convenience daily food and grocery requirements of Marsden Park main trade area residents.

iii. Residents within the North-West Growth Centre will in time be supplied with their own retail facilities. This includes indentified centres at Marsden Park, including the Town Centre. However, there is no identified Local Centre to serve the Colebee estate in the southern portion of this growth area.

iv. Further, in the short term, these identified larger centres will not be developed for some time and there will be a more pressing need to provide convenience facilities for residents of the Marsden Park main trade area.

v. The proposed site at Marsden Park is ideally located at the entrance to the region, with walk-in accessibility for future residents of the Colebee estate.

4 RETAIL FLOORSPACE POTENTIAL AND IMPACTS

This section of the report presents our assessment of the future potential for retail floorspace in the Marsden Park trade area, including the likely provision of supportable floorspace currently and in the longer term.

4.1 Australian Retail Floorspace Provision

i. In Australia, there is around 2.2 sq.m of retail floorspace provided for every resident. This is the generally accepted standard provision used throughout the Australian retail industry with the last Retail Census undertaken by the ABS in 1991/92. The provision of retail floorspace has increased from around 1.8 sq.m in the late 1980's, representing an average annual increase of 1.7% over this period.

ii. The increase in the retail floorspace provision per person reflects a number of key factors including:

- Real incomes earned by Australian residents have increased and as Australians have become wealthier they have spent an increasing proportion of their income on retail items.
- The range and size of tenants in the Australian market has increased substantially with many new mini-major tenants such as Toys R Us, JB Hi-Fi and the like.
- New retail concepts such as Homemaker Centres and Factory Outlet Centres.
- Improved and more efficient operations, including warehousing, resulting in costs savings which allow more costs to be devoted to trading floorspace for retail goods.

iii. Assuming the provision of retail floorspace per person was to continue to increase, in-line with historical trends, at an average rate of 1.7% annually, the provision would be 2.9 sq.m per person by 2026. Even if the rate of increase slowed to 0.85% annually (i.e. half the rate of the past twenty years) the provision would be 2.5 sq.m per person by 2026.

iv. There is no retail floorspace provided in the Marsden Park trade area currently.

4.2 Trade Area Retail Floorspace Demand

i. Table 4.1 details the demand for retail floorspace in the Marsden Park main trade area, allowing for some business from other market segments including from beyond the trade area and worker demand. This additional demand is assumed at 10% of total demand.

ii. The calculations in Table 4.1 go through a series of simple steps as follows:

- The current Marsden Park main trade area population (2010) of 1,200 persons could support 2,640 sq.m of retail floorspace at a rate of 2.2 sq.m per person.
- Business from other market segments add an estimated 10% to demand for floorspace, indicating total retail floorspace demand of 264 sq.m.
- The total retail floorspace demand of 2,904 sq.m can be compared with the current provision of no retail floorspace.

iii. Not all of the trade area resident's demand would be catered for locally. Some spending should and will be directed to facilities outside the trade area, particularly non-food spending. Overtime, however, as the population in the main trade area increases, a greater range of convenience retail facilities will be supportable in the main trade area.

iv. The next step in the analysis is to determine the increase in retail floorspace demand from growth in the Marsden Park trade area population base and also the increase in the provision of retail floorspace per person.

- The population base in the main trade area is projected to increase to 6,100 persons by 2026. At the current floorspace provision of 2.2 sq.m per person, this represents demand for 13,420 sq.m of retail floorspace in 2026.
- Additionally, the provision of retail floorspace per person will increase over the period to 2026. The likely provision would be 2.4 sq.m to 2.8 sq.m per person,

representing a per person increase of 0.2 sq.m to 0.4 sq.m in that time. Applying the more conservative estimate of 0.2 sq.m of additional retail floorspace to the Marsden Park main trade area population of 6,100 persons at 2026, indicates additional demand for 1,220 sq.m.

v. The steps detailed above generate a total retail floorspace demand in the Marsden Park main trade area of 14,640 sq.m by 2026. Allowing for a further 10% from other market segments increases demand to 16,104 sq.m by this time. This represents an additional 825 sq.m of retail floorspace being demanded each year.

vi. By 2013, the Marsden Park main trade area could support a further 2,475 sq.m of retail floorspace (i.e. three years growth by 825 sq.m).

vii. In our view, a significant proportion of convenience floorspace demand should be accommodated in the Marsden Park locality, as discussed in the next sub-section. Spending on large non-food items would continue to be directed to larger order retail centres, such as Plumpton and Blacktown, however, convenience based retailing should be retained locally. As the Marsden Park main trade area population increases, the ability to support a wider range of retail facilities increases.

viii. Overall, it can be seen that there is an absence of retail floorspace within the Marsden Park locality currently, with this shortfall projected to increase substantially in the future. As a result, retail floorspace needs to be provided in the Marsden Park locality to cater for the convenience needs of the local population who have to travel a round trip of at least 8 km to undertake basic convenience shopping currently.

TABLE 4.1 – RETAIL FLOORSPACE DEMAND

	Factor	Unit	
	2010		
(1)	Main Trade Population	(No.)	1,200
	Retail Floorspace Demand (@ 2.2 sq.m per person)		
(2) = (1) * 2.2	• Residents Retail Floorspace Demand	(Sq.m)	2,640
(3) = (2) * 0.10	• Other market segments demand (@10% of residents)	(Sq.m)	264
(4) = (2) + (3)	**• Total Retail Floorspace Demand**	**(Sq.m)**	**2,904**
(5)	Current Retail Floorspace	(Sq.m)	0
(6) = (5) - (4)	• Undersupply	(Sq.m)	-2,904
	2026		
(7)	Main Trade Population	(No.)	6,100
	Retail Floorspace Demand (@ 2.2 sq.m per person)		
(8) = (7) * 2.2	• Residents Retail Floorspace Demand	(Sq.m)	13,420
(9) = (8) * 0.2	• Additonal Residents Demand @ 0.2 sq. per person	(Sq.m)	1,220
(10) = (9) + (8)	• Total Residents Retail Floorspace Demand	(Sq.m)	14,640
(11) = (10)*.10	• Other market segments demand (@10% of residents)	(Sq.m)	1,464
(12)=(10)+(11)	**Total Retail Floorspace Demand 2026**	**(Sq.m)**	**16,104**

4.3 Supportable Floorspace – Marsden Park

i. As indicated in the previous Table 4.1, the locality does not include any retail floorspace, well below the Australian average of 2.2 sq.m per person.

ii. Of this 2.2 sq.m provision for the Australian retail floorspace average, around half (or 1.1 sq.m) is typically provided for by food grocery and food catering facilities. It is our view that around 50% of this food provision should be provided locally in Marsden Park (representing 0.55 sq.m) as products within these categories are typically everyday shopping items. Non-food facilities then make up the remaining proportion of retail floorspace, and around 25% should be provided at Marsden Park (0.275 sq.m). Non-food retail facilities that should be included at Marsden Park include convenience based facilities such as pharmacies, hairdressers, newsagents and the like.

iii. As a result, while it is unlikely that all of the retail demand (2.2 sq.m per person) will be provided within the Marsden Park region, a proportion should be supportable locally. In this instance, it is our view that around 0.825 sq.m per person (0.55 sq.m + 0.275 sq.m) should be accommodated within Marsden Park, or around 37.5% of the total demand.

iv. Table 4.2 outlines the total provision of retail floorspace that is likely to be supportable within Marsden Park at 2010 and over the period to 2026, taking into account a 37.5% share of total demand. This indicates demand for 1,089 sq.m currently in 2010.

v. Furthermore, with the growth in population and retail provision per person, the supportable retail provision will increase further in the future, to 6,039 sq.m by 2026.

vi. By 2013, the supportable demand would be 2,017 sq.m, compared with the proposed retail centre at Marsden Park at 2,990 sq.m. Growth in the market would see the entire centre supportable by 2015.

TABLE 4.2 – MARSDEN PARK SUPPORTABLE RETAIL FLOORSPACE PROVISION

	Factor	Unit	
	2010		
	Main Trade Population	(No.)	1,200
(1)	• Current Retail Floorspace Demand	(Sq.m)	2,904
(2) = (1) * 0.375	• Marsden Park Supportable Provision (@37.5% of total)	(Sq.m)	**1,089**
	2026		
	Main Trade Population	(No.)	6,100
(3)	• Retail Floorspace Demand	(Sq.m)	16,104
(4) = (3) * 0.375	• Marsden Park Supportable Provision (@37.5% of total)	(Sq.m)	**6,039**

4.4 Retail Locations

i. As identified previously, there is no provision within the Marsden Park Draft Structure Plan for a convenience Local Centre at Marsden Park/Colebee.

ii. Any future Local Centre should be easily accessible to existing and future residents of the Marsden Park trade area.

iii. Most retail centres are successful in high profile locations at major entry/exit points to residential estates. This is a simple reflection of the fact that retail stores work best when they have maximum exposure to residents in their local area.

iv. The proposed site along Richmond Road (but with access internally) at the entrance to the residential estate at Colebee would be an ideal location to ensure the long term success of retail facilities at Colebee, particularly as larger retail centres are developed at Marsden Park Town Centre.

v. A good example of the success of a Local Centre, with good visibility along a major road but serving local residents, is Rouse Hill Village (Mile End Road). This small Franklins based centre was developed to serve residents of the growing Rouse Hill region in the early days of residential development.

vi. The centre continues to trade strongly, in spite of the large Rouse Hill Town Centre development, with two full-line supermarkets, only 1 km away.

vii. A site which would be internally located within the Marsden Park residential estate, on the top of a hill, would not be an appropriate location for a convenience retail centre. The reasons for this include:

- An internal location means that all residents do not pass the centre on a regular basis reducing the convenience of the offer.
- Retail centres are best developed over a single level with simple pedestrian access and car parking. An undulating site does not maximise shopper convenience, particularly for the young and elderly if they walk to the site.

– Hilltop locations are better suited to residential as compared with retail developments as retail is about functionality not views/wishes and would not maximise the value of the hilltop site.

4.5 Draft Competition SEPP (Competition) 2010

i. On 27 July 2010 the New South Wales Department of Planning released the draft State Environmental Planning Policy (Competition) 2010 (Draft SEPP) for public comment. The stated aim of the Draft SEPP is to promote economic growth and competition and to remove anti-competitive barriers in environmental planning and assessment.

ii. The draft Competition SEPP proposes that:

- the commercial viability of a proposed development may not be taken into consideration by a consent authority, usually the local Council, when determining development applications;
- the likely impact of a proposed development on the commercial viability of other individual businesses may also not be considered; except
- if the proposed development is likely to have an overall adverse impact on the extent and adequacy of local community services and facilities, taking into account those to be provided by the proposed development itself; and
- any restrictions in local planning instruments on the number of a particular type of retail store in an area, or the distance between stores of the same type, will have no effect (anti clustering controls).

iii. The development of the proposed site will allow greater convenience and choice for the local population who currently have to undertake a round trip of at least 8 km for their food and grocery shopping.

iv. Impacts on other retailers beyond the main trade area will be relatively limited and will not impact on their ability to continue to operate. There are limited implications

for any retail stores beyond the trade area as these centres will continue to attract a proportion of the retail floorspace demand of the growing population in the Marsden Park trade area. These centres stand to benefit from market growth over time.

4.6 Employment and Consumer Impacts

v. The development proposed at Marsden Park will result in a range of important economic benefits. These key positive employment and consumer impacts will include the following:

- The provision of a wider range of shopping facilities for local residents, including a convenience based supermarket.

- The retail component of the proposed development is projected to employ around 164 persons as summarised in Table 4.3. Taking a conservative view and allowing for an estimated 10% of the total increase to be as a result of the reduced employment at existing retail facilities, the net additional jobs are estimated at 148.

- The additional 148 permanent retail employees within the centre would earn an average annual wage of around $28,000 as sourced from the ABS. This represents an additional $4.3 million in salary and wages for the local economy, directly as a result of the retail component of the proposed development.

- Further jobs would be created from the supplier induced multiplier effects as a result of the retail jobs for the on-going running of the retail component of the proposed development at Marsden Park as well as from the construction of the centre. Jobs created are full-time equivalent jobs, which may include both full-time and part-time positions.

- The additional retail jobs (148), will result in a further 140 jobs in the broader community, based on ABS Input/Output Multipliers (refer Table 4.4).

- The proposed development of the proposed retail facility will create a substantial number of additional jobs, both for the construction and related industries during the construction phase of the centre and for the economy generally once the centre is completed.

- The estimated total capital costs for the construction of the centre are $10 million. By using the appropriate ABS Input/Output Multipliers that were last produced in 1996/97 and a deflated estimated total capital cost of construction of $7.9 million (i.e. in 1996/97 dollars), it is estimated that the construction period for the proposed development would create some 55 jobs (refer Table 4.5).

- The additional construction jobs (55), will result in a further 88 jobs in the broader community based on ABS Input/Output Multipliers (refer Table 4.5).

- Retail is a significant employment generator for young people. This will be important for the region, which contains a large young, family based population.

TABLE 4.3 – ESTIMATED EMPLOYMENT IMPACT

Type of Use	Estimated Employment Per '000 sq.m	Richmond Rd Centre Change in GLA (sq.m)	Richmond Rd Centre Employment (persons)
Supermarket	50	1,500	75
Retail Specialty Shops	60	1,490	89
Total Centre[1]		**2,990**	**164**
Net Increase[2]			**148**

1. Excludes non-retail components.
2. Net increase includes an allowance for reduced employment levels at impacted centres estimated at 10% of the total increase

TABLE 4.4 – ESTIMATED EMPLOYMENT IMPACT

Original Stimulus	Direct Employment	Supplier Employment *Multiplier Effects*	Total
Centre Employment[1]	148	140	288

** Employment totals include both full-time and part-time work*
1. Indicates the estimated number of net additional ongoing jobs as a result of the proposed development
Source : Australian National Accounts: Input-Output Tables 1996-97

TABLE 4.5 – ESTIMATED CONSTRUCTION EMPLOYMENT IMPACT

Original Stimulus	Estimated Capital Costs ($M)[1]	Direct Employment	Supplier Employment *Multiplier Effects*	Total	
Construction of Project	7.9	55	88	143	Job Years[2]

** Employment totals include both full-time and part-time work*
1. Adjusted by inflation and productivity to 1996/97 Dollars
2. Indicates the estimated number of jobs over the life of the construction project plus ongoing multiplier effects, for the equivalent of one year
Source : Australian National Accounts: Input-Output Tables 1996-97

5 NEEDS ANALYSIS

The final section of this report summarises the key conclusions of the analysis for the proposed development at Marsden Park.

'Need' or 'Community Need' in a planning sense is a relative concept that relates to the overall wellbeing of a community. A use is needed, for example, if it would, on balance, improve the services and facilities available in a locality. The reasonable demands and expectations of a community are important, therefore, in assessing need.

A number of important factors that relate to need, particularly economic need, include:

1. Population Growth
2. Consumer Trends
3. Supply of retail facilities
4. Impacts on existing retail facilities
5. Location
6. Net community benefits

5.1 Population Growth

i. The growing population based within the Marsden Park main trade area will demand and support a greater range of retail facilities, particularly convenience retail facilities.

ii. Until such time as the Marsden Park Town Centre is developed a small convenience retail centre will be supported and is needed by the population at Colebee.

5.2 Consumer Trends

i. The Marsden Park main trade area will contain a large young family market, with a large proportion of households containing couples with dependent children. As such,

there is a strong need for a wider choice of convenience shopping facilities to be provided within close proximity to the homes of residents.

ii. The need for convenience and choice is particularly relevant for the young family population, with many family households now containing two time poor working parents.

5.3 Supply of Retail Facilities

i. Over the past five years, there has been increasing trends towards convenience shopping. This trend has been largely driven by broader social trends and the result being consumers becoming more time poor. These social trends include:

- Longer working hours.
- An increase in the number of women in the labour force.

ii. Time pressures are ranked at the top of the list of issues that consumers face when undertaking their regular food and grocery shopping.

iii. As a result of the increasing time pressures that consumers face when it comes to food and grocery shopping, there is growing demand for convenience based shopping centres to meet the needs of local residents. It is important for the planning documents to acknowledge this trend.

iv. The development of the proposed site will allow greater convenience and choice for the local population who currently have to undertake a round trip of at least 8 km for their food and grocery shopping.

5.4 Impacts on Existing Retailers

i. Impacts on other retailers beyond the main trade area will be relatively limited and will not impact on their ability to continue to operate.

ii. There are limited implications for any retail stores beyond the trade area as these centres will continue to attract a proportion of the retail floorspace demand of the growing population in the Marsden Park trade area.

iii. These centres stand to benefit from market growth over time.

5.5 Impacts on Proposed Centres

i. The potential impacts on proposed centres throughout the Marsden Park Strucutre Plan area will be limited as outlined below:

a. Any other future Local Centres are more than 4 km away from the proposed site and will serve different trade areas to the proposed Local Centre at Marsden Park.

b. Any shopping facilities in the industrial area will service future workers for their takeaway food/convenience shopping, separate from the proposed role of the site at Marsden Park.

c. Marsden Park Town Centre will continue to be the largest centre in the retail hierarchy and its potential will not be impacted by the proposed Local Centre development. The Marsden Park Town Centre is proposed to eventually include around 25,000 sq.m of floorspace, including a discount department store and major supermarkets. The discount department store would be over 7,000 sq.m while the provision of specialty shops would be at least 100 stores, with 70% likely to be non-food stores (70 stores) and with a substantial proportion being apparel retailers.

In comparison, the proposed Local Centre will contain less than 3,000 sq.m of retail floorspace of which only 1,500 sq.m will be specialty shops or the equivalent of around 12-14 stores. Of these specialty shops most will be food specialty stores (bakery, butcher, take-away food stores, etc) and with limited non-food facilities. The non-food stores will most likely be convenience orientated specialty stores such as pharmacy, newsagents, dry

cleaners, hairdressers and the like (less than 5 stores). These stores will only compete with a very limited range of stores in the Marsden Park Town Centre (over 70 stores) and will not compete with the discount department store and apparel and homeware traders at Marsden Park Town Centre. The overall much larger non-food role of Marsden Park Town Centre will not be compromised in any way.

Although the proposed Local Centre will have a small sized supermarket at less than 1,500 sq.m, this will be much smaller than the full-line supermarkets proposed at Marsden Park Town Centre of at least 3,500 – 4,000 sq.m. Marsden Park Town Centre, therefore, will clearly be the major destination for food and grocery and non-food shopping within the Marden Park Growth Area and its role in the retail hierarchy will not be compromised or delayed.

5.6 Location

i. Excellent accessibility is provided to the local population for the proposed site at Marsden Park.

ii. An internal location in the residential estate is not appropriate for a strong trading retail centre in the longer term.

5.7 Net Community Benefits

i. It is the conclusion of this report that a substantial net community benefit will result from the development of the proposed site. Offsetting the small trading impacts on some existing retailers beyond the trade area, there are very substantial positive impacts including the following:

- Improvement in the range of retail facilities that will be available to residents.
- The proposed additional retail offer will significantly improve convenience and most likely improve choice of location and also allow for price competition.

- The creation of additional employment which will result from the project, both during the construction period, and more importantly, on an ongoing basis once the centre is completed and operational. This includes a number of youth employment opportunities with retail developments generally employing a large number of younger staff. This will be important for the significant and growing young population in the region.

ii. It is concluded that the combination of the substantial positive economic impacts serve to more than offset the limited trading impacts that could be anticipated. Further, the impacts would not threaten the viability of any of these retailers or centres.

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Appendix 2 – Civil Engineering Supporting Letter

MECONE

Our Ref: L06
Contact: David Pitronaci

16th May 2011

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Legacy Property
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Dear Stewart

799 RICHMOND ROAD, COLEBEE – REZONING APPLICATION – FLOODING AND DRAINAGE CONSIDERATIONS

Further to our various meetings with Council regarding the configuration and ownership of the drainage corridor and proposed locations of drainage infrastructure, Cardno has documented amendments to the civil design and has undertaken flood modelling to inform and support the proposed amendments to the existing zoning boundaries which will facilitate the development of the site as documented for the development applications lodged separately for the east and the west of the creek.

Two key engineering issues which have influenced the proposed rezoning boundaries are the stormwater detention / water quality treatment areas and the modelling of the drainage corridor. These are outlined as follows:

Detention Storage and Water Quality Treatment

As agreed with Council during various meetings with engineering and planning staff, detention storage / water quality treatment areas have been relocated such that they are at least 40m from the top of bank of Bells Creek. The areas have been also designed such that their invert levels are above the 1 in 100 year flood levels.

The detention areas have been modelled using the program “Drains” to demonstrate that their storage volume is sufficient to detail the 1 in 5 to 1 in 100 year ARI storm events to pre-development discharges as required by Council’s DCP.

The water quality treatment system has been modelled using “MUSIC” to demonstrate that the available treatment areas are sufficient to treat flows to Council’s requirements.

It is proposed that the detention storage / water quality treatment areas will be dedicated to Council, and as such, the areas in which the facilities are located will be subdivided and appropriately zoned to allow public ownership of the drainage infrastructure.

Flood Levels in Bells Creek:

Cardno has carried out significant consultation with Council and DECCW with respect to the drainage corridor and its requirements to contain flooding, serve a riparian function and facilitate ongoing maintenance. This involved the establishment of flood

levels in consultation with Council's engineering staff and the containing of flood extents within the proposed corridor without adversely affecting levels upstream.

Re-shaping of the drainage corridor is proposed so as to confine flooding to within the 40m corridor from the top of bank on both sides of Bells Creek and to ensure that there is no increase in the 1 in 100 year flood levels upstream of the site. The reshaping is proposed to consist of minimal regrading (up to approximately 500mm of cut). This will be further refined at detailed design stage in order to maximise the retention of any existing vegetation. Indicative cross sections of the re-shaping are detailed with the civil engineering plans submitted for the relevant development applications. Channel rehabilitation and appropriate scour protection will also be provided where necessary, subject to detailed design.

Both existing and design condition scenarios were run using HEC-RAS modelling with flow data as provided by Council in the form of a RAFTS model. The analysis demonstrated that flood levels upstream would not be adversely affected by the proposal. The modelling data has been provided to Council with the relevant development applications.

The resulting corridor is on average, approximately 85-90m wide or greater (40m from the top of bank, either side of Bells Creek). After consultation with Council, it was agreed that this corridor be retained in private ownership within a single lot.

A plan indicating proposed amendments to zone boundaries is enclosed.

Should you have any questions regarding the above, please do not hesitate to call.

Yours Faithfully

David Pitronaci
B.E (Civil) CPEng NPER
Manager – Urban & Transport
for **Cardno**

Enc: Zoning Plan 110517 Proposed Changes to Zoning

PARK

	EAST OF CREEK	WEST OF CREEK	TOTAL
EXISTING PARK ZONE	7,000m²	3,000m²	10,000m²
PROPOSED PARK	7,009m²	3,416m²	10,425m²
NET INCREASE / DECREASE	+9m²	+416m²	+425m²

RIPARIAN / DRAINAGE

	EAST OF CREEK	WEST OF CREEK	TOTAL
EXISTING 5(a) DRAINAGE AREA	17,598m²	23,285m²	40,883m²
PROPOSED PRIVATE RIPARIAN ZONING	16,602m²	16,798m²	33,397m²
PROPOSED PUBLIC DRAINAGE INFRASTRUCTURE	6,629m²	3,766m²	10,395m²
NET INCREASE	+5,633m²	-2,721m²	+2,909m²

INFRASTRUCTURE

EXISTING INFRASTRUCTURE 5(b)	13,371m²
PROPOSED INFRASTRUCTURE	0.0m²
NET INCREASE / DECREASE IN INFRASTRUCTURE 5(b)	13,371m²

LEGEND

- EXISTING 5(a) DRAINAGE ZONE BOUNDARY
- 40m FROM TOP OF BANK
- 1 IN 100 YEAR FLOOD EXTENT
- PROPOSED PARK
- EXISTING PARK
- PUBLIC DRAINAGE INFRASTRUCTURE
- PRIVATE RIPARIAN ZONING

Cardno

799 RICHMOND ROAD
PROPOSED CHANGES TO ZONING AREAS

11/07/2011

Appendix 3 – Ecological Assessment

MECONE

799 Richmond Road, Marsden Park

Ecological Assessment

Prepared for
Legacy Property

28 July 2010

DOCUMENT TRACKING

ITEM	DETAIL
Project Name	799 Richmond Road, Marsden Park
Project Number	10SUTECO-0053
Prepared by	SH, KK
Reviewed by	KK
Approved by	SH
Status	Final
Version Number	2
Last saved on	28th July 2010

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1 Introduction

Eco Logical Australia Pty Ltd was commissioned by Legacy Property to undertake an ecological assessment of the proposed subdivision of 799 Richmond Road, Marsden Park (**Error! Reference source not found.**). The proposal is located within the Blacktown Local Government Area (LGA) and is to be assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The study area is adjacent to the Marsden Park Industrial Precinct (MPIP), part of the Western Sydney Growth Centres. The study area was rezoned as part of the Colebee Release area, the Draft Local Environment Study was released in October 2003 and gazetted in 2005.

Under Clause 7A(2)a of *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (Growth Centres SEPP), the Colebee Precinct is included in the Western Sydney Growth Centres. Consequently, this site is included in the Biodiversity Certification Order (2007) and is 'biodiversity certified' under the Growth Centres SEPP.

1.1 STUDY AREA

This 28.3 hectare site extends from Richmond Road in an easterly direction. The site slope gently from Richmond Road to Bells Creek and then gently again up to a ridge line which demarcates the catchment boundary between Bells Creek and South Creek.

A civil company occupies the western part of the site adjacent to Richmond Road. The remainder of the site is an active grazing property.

1.1.1 Soils

The study area traverses two soil landscape groups, namely, Blacktown and South Creek.

The Blacktown Soil Landscape group is present across the majority of the study area. This landscape group supports a variety of soil types including friable brownish black loam, hardsetting brown clay loam, strongly pedal, mottled brown and light grey plastic mottled clay. These soils occur on Wianamatta Group – Ashfield Shale consisting of laminate and dark grey siltstone, Bringelly Shale which consists of shale with occasional calcareous claystone, laminate and infrequent coal, and Minchinbury Sandstone consisting of fine to medium-grained quartz lithic sandstone. The soils generally have low fertility and were originally dominated by woodland and open forest with a canopy of *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus crebra* (Narrow-leaved Ironbark), Grey Box (*Eucalyptus moluccana*) and Spotted Gum (*Corymbia maculata*) (Bannerman & Hazelton 1989).

The South Creek Soil Landscape Group occurs in a narrow band running in a north south direction along Bells Creek on eastern side of the study area. This landscape group is characterised by soils of brown apedal single-grained loam, dull brown clay loam or bright brown clay. This group is situated on the present active floodplain on many drainage lines of the Cumberland Plain. The geology is quaternary alluvium derived from Wianamatta Group Shales and Hawkesbury Sandstone. Characteristic vegetation on this landscape group includes *Angophora subvelutina* (Broad-leaved Apple), *Eucalyptus amplifolia* (Cabbage Gum) and *Casuarina glauca* (Swamp Oak) (Bannerman & Hazelton 1989).

1.1.2 Watercourses

Bells Creek is the only creek passing through the study area, with the rest of the site subject to overland flow.

2 Description of Proposal

The proposal includes:

- Subdivision of land to the west of the riparian corridor for urban uses (residential and commercial)
- Construction of the main connector road throughout the entire site
- Subdivision of the land to the east of the riparian zone into two (2) superlots

This is shown in figure 2.

3 Legislative Requirements

3.1 COMMONWEALTH ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) provides a national scheme for protecting the environment and conserving biodiversity values. Approval from the Commonwealth Environment Minister is required under the EPBC Act if the action (which can include a project, development, undertaking or activity) will, or is likely to, have a significant impact on matters considered to be of National Environmental Significance (NES matters). Whilst there is evidence of Shale Gravel Transition Forest on the site, which is included as part of the Cumberland Plain Woodland Critically Endangered Ecological Community, the condition and size of the vegetation does not meet the commonwealth definition of this community. A number of other species protected under the EPBC Act have the potential to occur on the site. Tests of Significance (Appendix E) have concluded that the proposal is not likely to have a significant impact on NES matters.

3.2 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of development proposals. Various legislation and environmental planning instruments, such as the NSW *Threatened Species Conservation Act 1995* (TSC Act), are integrated with EP&A Act.

3.3 THREATENED SPECIES CONSERVATION ACT 1995

The TSC Act aims to protect and encourage the recovery of threatened species, populations and communities listed under the Act. The Act is integrated with the NSW EP&A Act and requires consideration of whether a development (Part 4 of the EP&A Act) or an activity (Part 5 of the EP&A Act) is likely to significantly affect threatened species, populations and ecological communities or their habitat. Endangered ecological communities and threatened species have been recorded within and adjacent to the site.

The TSC Act sets out provisions for planning and assessment of impacts on threatened species, endangered populations and Endangered Ecological Communities (EEC). All listed EECs, or species of flora or fauna that are known to occur, or could potentially occur, will require an assessment of potential impacts for any proposed development.

Impacts are generally assessed through the application of the Assessment of Significance (7-part test). However, as this site is included under the Growth Centres Biodiversity Certification Order (2007), the bulk of the proposal is exempt from further assessment. Schedule 7, Part 7 of the TSC Act confers biodiversity certification on all the subject land within the Growth Centres.

As flood liable land is non-certified, the exception to this is the construction of a crossing over Bells Creek, 7-part tests assessing this impact (Appendix D) have concluded that this is not likely to result in a significant impact and a Species Impact Statement (SIS) is not required.

3.4 WATER MANAGEMENT ACT 2000

The aim of the WM Act is to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations. This includes applying the principals of ecologically sustainable development and integrating the management of water sources with the management of other aspects of the environment, including the land, its soil, its native vegetation and its native fauna.

As development will be undertaken within 40 metres or a watercourse, Controlled Activity Approval will be required for the development of 'Waterfront Land'.

The area within 40 metres of Bells Creek is proposed to be utilised for the purposes of water detention and treatment. This area will be fully revegetated with local provenance native species that will emulate the Alluvial Woodland ecological community.

3.5 BLACKTOWN LOCAL ENVIRONMENTAL PLAN 1988

The following clauses relating to biodiversity apply to the proposal;

25 Tree preservation

(1) A person shall not ringbark, cut down, lop, top, remove, injure or wilfully destroy any tree, or cause any tree to be ringbarked, cut down, topped, lopped, removed, injured or wilfully destroyed; except with the consent of the council.

50 Development of certain land in the Colebee Release Area

(10) In deciding whether to consent to any development on land to which this clause applies that is within 40 metres of Eastern Creek or Bells Creek (when measured from the top of the bank of the creek), the council is to have regard to the following:

(a) the nature and function of the riparian environmental corridors affected by the proposed development,

(b) the impact of the proposed development on the riparian environment,

(c) whether the area has high biological diversity, and

(d) whether the land has connective importance as part of the corridor of bushland that allows for the potential passage of species of flora or fauna between two or more areas of bushland.

Figure 1: Study Area

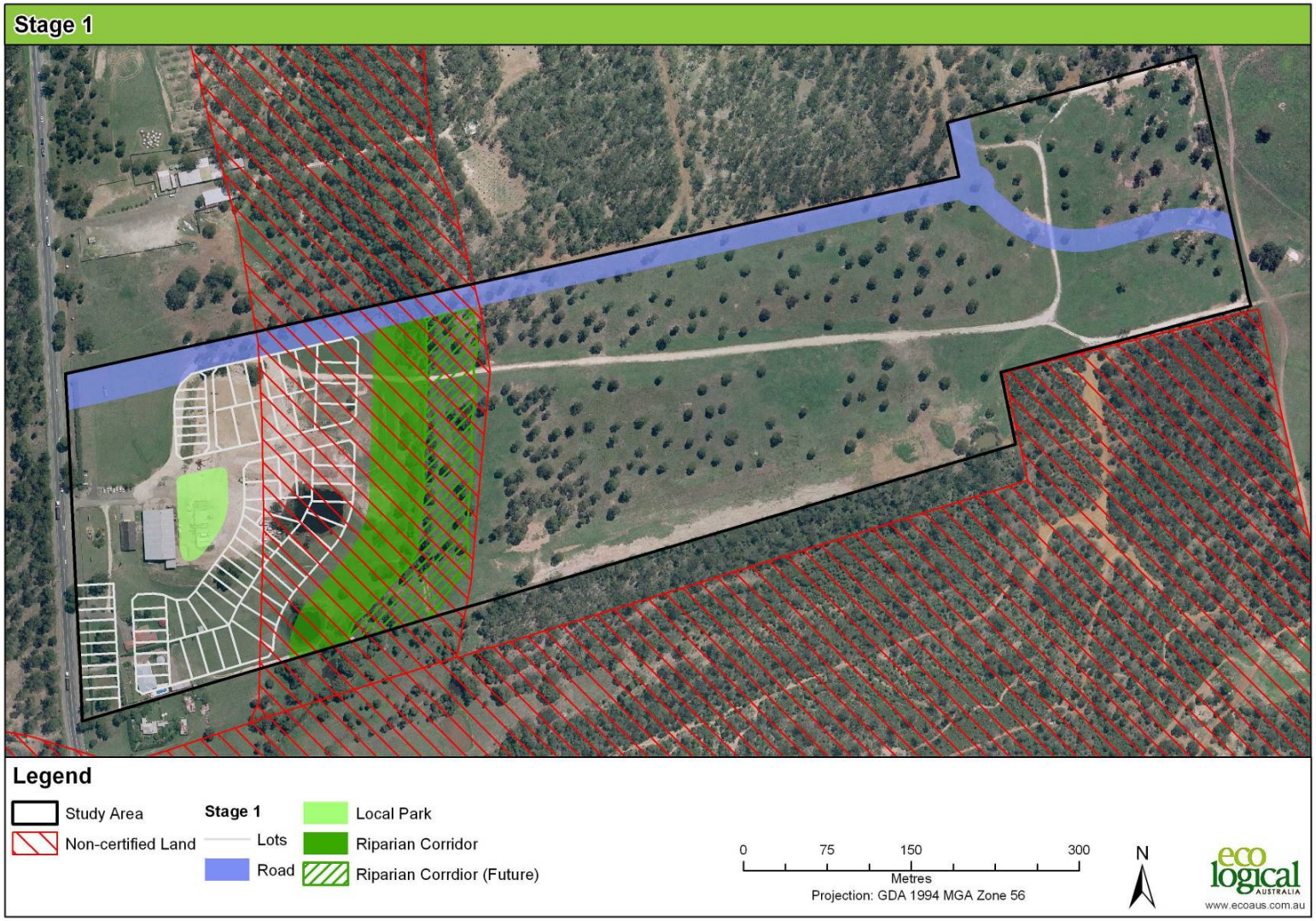

Figure 2: Proposed Stage 1 Layout

4 Methods

4.1 LITERATURE REVIEW

A review of all readily available literature and database records pertaining to the ecology of the study area and surrounding locality were reviewed to provide important background information. Information reviewed included:

- Department of Environment, Climate Change and Water (DECCW2010a) Atlas of NSW Wildlife database records (10 km radius);
- Department of Environment, Water, Heritage and the Arts (DEWHA 2010a) Online search for Matters of National Environmental Significance (Accessed June 2010);
- Aerial photography (2005);
- Bannerman, S.M., Hazelton, P.A. and Tille, P.J. (1990) Soil Landscapes of the Penrith 1:100000 Sheet Map and Soil Landscapes of the Penrith 1:100000 Sheet Report;
- Eco Logical Australia (2009) Marsden Park Industrial Precinct – Ecological Assessment;
- NSW National Parks & Wildlife Service (2002a) Native Vegetation of the Cumberland Plain; and
- NSW National Parks & Wildlife Service (2002b) Interpretation Guidelines for the Native Vegetation Maps of the Cumberland Plain, Western Sydney, Final Edition.

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database searches. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the study area, results of the field survey and professional judgement. The terms for likelihood of occurrence are defined below:

- "yes" = the species was or has been observed on the site
- "likely" = a medium to high probability that a species uses the site
- "potential" = suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur
- "unlikely" = a very low to low probability that a species uses the site
- "no" = habitat on site and in the vicinity is unsuitable for the species.

4.2 SITE INSPECTION

The study area was visited on the 18th May, 2010. Surveys included vegetation mapping and traverses, and targeted searches for threatened flora and fauna habitat features.

Cool, overcast conditions with occasional light rain were encountered on the day, with a maximum temperature during survey of 17 degrees Celsius. Approximately 8 person hours were spent on the site.

Given the rain and cool temperatures, it is likely that fauna activity, in particular bird activity, across the site was lower than normal at the time of the site inspection. Further detail of the methodology used for the project has been provided below.

4.2.1 Vegetation mapping

Vegetation mapping was undertaken using aerial photography and ground-truthing the current Vegetation of the Cumberland Plain mapping (NPSW 2002a). The site was traversed and a list of species recorded (Appendix A).

Vegetation boundaries were marked on aerial photography and mapped using Geographic Information Systems (GIS). Areas of derived native grasslands were identified.

A full floristic list was prepared for the site, and the location of any individual threatened species marked on aerial photos and entered in the GIS.

Commonwealth Cumberland Plain Woodland and Shale Gravel Transition Forest Condition Criteria

The condition assessment criteria under the EPBC Act differs from that of the TSC Act. Condition is assigned based on patch size and perennial understorey cover. Table 1 below outlines the EPBC Act condition criteria which were applied to vegetation within the study area to determine the condition code.

Table 1: Condition Thresholds for Patches[3] that meet the Description for the Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest ecological community.

Category and rationale	Thresholds
A. Core thresholds that apply under most circumstances: patches with an understorey dominated by natives and a minimum size that is functional and consistent with the minimum mapping unit size applied in NSW.	Minimum patch[3] size is ≥0.5ha; **AND** ≥50% of the perennial understorey vegetation cover[4] is made up of native species.
OR	
B. Larger patches which are inherently valuable due to their rarity.	The patch size is ≥5ha; **AND** ≥30% of the perennial understorey vegetation cover is made up of native species.
OR	
C. Patches with connectivity to other large native vegetation remnants in the landscape.	The patch size is ≥0.5 ha; **AND** ≥30% of the perennial understorey vegetation cover is made up of native species; **AND** The patch is contiguous[5] with a native vegetation remnant (any native vegetation where cover in each layer present is dominated by native species) that is ≥5ha in area.
OR	
D. Patches that have large mature trees or trees with hollows (habitat) that are very scarce on the Cumberland Plain.	The patch size is ≥0.5 ha in size; **AND** ≥30% of the perennial understorey vegetation cover is made up of native species; **AND** The patch has at least one tree with hollows per hectare or at least one large tree (≥80 cm dbh) per hectare from the upper tree layer species outlined in the Description and Appendix A.

Category and rationale	Thresholds
[3] A *patch* is defined as a discrete and continuous area that comprises the ecological community, outlined in the Description. Patches should be assessed at a scale of 0.04 ha or equivalent (e.g. 20m x 20m plot). The number of plots (or quadrats or survey transects) per patch must take into consideration the size, shape and condition across the site. Permanent man-made structures, such as roads and buildings, are typically excluded from a patch but a patch may include small-scale disturbances, such as tracks or breaks or other small-scale variations in native vegetation that do not significantly alter the overall functionality of the ecological community, for instance the easy movement of wildlife or dispersal of spores, seeds and other plant propagules. [4] Perennial understorey vegetation cover includes vascular plant species of the ground and shrub layers (as outlined in the Description and Appendix A) with a life-cycle of more than two growing seasons (Australian Biological Resources Study, 2007). Measurements of perennial understorey vegetation cover exclude annuals, cryptogams, leaf litter or exposed soil (although these are included in a patch of the ecological community when they do no alter functionality as per footnote 3 and the Description and Condition Thresholds are met). [5] Contiguous means the woodland patch is continuous with, or in close proximity (within 100 m), of another patch of vegetation that is dominated by native species in each vegetation layer present.	

Source: DEWHA (2009a) Advice to the Minister for the Environment, Heritage and the Arts from the Threatened Species Scientific Committee (the Committee) on an Amendment to the List of Threatened Ecological Communities under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

4.2.2 Threatened Flora Surveys

Given the small size of the study area, it was possible to traverse areas of potential habitat in search of threatened flora. The location of all threatened flora was marked on an aerial photo and entered into the GIS. Where more than one individual was present in proximity, one point was recorded and the number of individuals within the clump was noted.

4.2.3 Fauna Habitat Mapping

The presence of important habitat features for fauna such as hollow-bearing trees, potential nesting or roosting sites, rocky outcrops, waterbodies and winter flowering eucalypts were recorded. The location of any important habitat features were marked on an aerial photo and entered into GIS so that they could be relocated and avoided where required.

4.2.4 Targeted Cumberland Land Snail Searches

Targeted searches for the Cumberland Land Snail were undertaken across the site. No evidence of snails was recorded.

4.2.5 Limitations

General

This assessment was not intended to provide an inventory of all species present across the site but instead an overall assessment of the ecological values of the site with particular emphasis on threatened species, endangered ecological communities and key fauna habitat features. It is important to note that some species may not have been detected on the site during the inspection as they may be cryptic or seasonal and only detectable during flowering or during breeding. In this case the likelihood of their occurrence on site has been assessed based on the presence of potential habitat.

Given the cryptic nature of some species and that some species such as orchids can only be detected during the flowering season, it may not have been possible to detect all threatened species during the survey period. For these species an assessment of the presence of potential habitat was made.

The study area is grazed or mown in many parts making identification of flora species difficult. Furthermore, not all grass species were in flower/seed, therefore, it was not possible to identify some specimens to species level. In heavily grazed and mown areas, estimates of percentage cover of native and exotic species was often difficult. In areas where cover abundance estimates were difficult, a precautionary approach was used for mapping areas under the EPBC Act.

Vegetation Boundaries

Vegetation mapping of an area seeks to describe the distribution of the plant species in that area at that time by defining a number of vegetation units (assemblages or communities), which are relatively internally homogeneous. This generalised approach can over simplify the real situation as plants rarely occur in well-defined communities with distinct boundaries. Accordingly, vegetation units used for mapping should be viewed as indicative of their extent.

Furthermore, predicting historical vegetation boundaries within in cleared landscape is extremely difficult and therefore vegetation boundaries shown on the mapping are indicative only and based on a best estimate using the information available.

5 Results

5.1 LITERATURE REVIEW

Database searches indicated that a number of threatened species and endangered ecological communities had been recorded, or have the potential to occur, within the locality (DECCW 2010a, DEWHA 2010). An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database searches and is included in Appendix B.

5.1.1 Vegetation mapping

Broad scale vegetation mapping for the study area has been completed as part of the *Vegetation of the Cumberland Plain* (NPWS 2002) mapping. This has been subsequently ground-truthed by Eco Logical Australia and the mapping formalised. Two endangered ecological communities have been mapped within the study area:

- Shale Gravel Transition Forest; and
- River Flat Eucalypt Forest.

5.2 VEGETATION COMMUNITIES AND FLORA

5.2.1 Flora

A total of 65 flora species were recorded across the vegetation types present throughout the study area (Appendix A). Of these, 28 were exotic species.

The site has undergone past vegetation clearance. Regrowth vegetation is present across portions of the study area with the remaining areas supporting primarily exotic pasture. Many of the areas are currently grazed by cattle and hence have been degraded. A description of each of the vegetation communities has been included below and their distribution across the site is shown in Figure 3.

5.2.2 Vegetation Communities

Shale/Gravel Transition Forest (SGTF)

Whilst the site has been cleared, sparse remnant trees and native ground covers were present in varying densities across the site. Directly to the north of the site an area of intact SGTF is present, whilst to the south of the site lays an area of Cooks River Castlereagh Ironbark Forest. Whilst it is likely that both communities were once on the site and that there would have been transitional areas between the two communities, SGTF is likely to have been the dominant community.

SGTF forms part of the EPBC listed of Cumberland Plain Shale Woodland and Shale Gravel Transition Forest, a critically endangered ecological community. However, due to the poor quality and small size of vegetation on the site, the EPBC thresholds identified in Table 1 were not met. Consequently, there is no EPBC Act listed vegetation on the site.

Alluvial Woodland

On the lower slopes, generally adjacent to Bells Creek lies an area of disturbed Alluvial Woodland. Immediately adjacent to the banks of Bells Creek the vegetation generally exhibited better canopy cover, however significant weed invasion was also present. The understorey was typically dominated

by a variety of exotic grasses, although areas of native understorey are present on the eastern side of Bells Creek, slightly setback from Bells Creek itself.

Derived Native Grassland

Areas of vegetation that did not have native canopy but contained greater than 50% native grasses and groundcover species were mapped as derived native grassland. The state listing of Cumberland Plain Woodland specifically identifies derived native grassland as being an important part of this community, this has not been applied to Shale Gravel Transition Forest. In any event the area of derived native grassland lies within the 'certified lands' of the Conservation Plan and the TSC Act does not apply.

The EPBC definition of CPW (which includes SGTF) does not include derived native grasslands unless they are contiguous with other areas of CPW.

Exotic pasture

The remainder of the site is exotic pasture. Whilst some native species occur within these areas, the vegetation is dominated by exotic species including kikuyu (Pennisetum clandestinum), couch (Cynodon dactylon) and Rhodes Grass (Chloris gayana).

5.2.3 Noxious Weeds

A total of 28 exotic flora species were recorded across the site (Appendix A). Two weeds listed as noxious in the Blacktown LGA (NSW DPI 2010) under the *Noxious Weeds Act 1993* were recorded at the site and have been listed below in Table 2 together with their control class. One Weed of National Significance (DEWHA 2010b) was recorded at the site.

Table 2: Noxious weeds recorded within the study area

Scientific Name	Common Name	NW Act Class	WON
Lycium ferocissimum	African Boxthorn	4	
Asparagus asparagoides	Bridal Creeper	5	*

Note:

Class 4 = The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority.

Class 5 = the requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with.

5.3 FAUNA HABITAT

Fauna habitat is Limited throughout the study area due to past disturbance and grazing. However, the more intact remnants provide potential habitat for a variety of fauna and the ephemeral drainage lines and dams provide habitat for birds, microbats and amphibians. A summary of the fauna habitat features present across the study area and the species for which they are likely to provide habitat are summarised below in Table X and more details regarding fauna habitat present across the site is provided below. A list of fauna recorded during the surveys is included in Appendix C.

Table 3: Fauna habitat features

Habitat Feature	Species
Woodland and scattered trees	Birds, microchiropteran bats (microbats), arboreal mammals, reptiles, Cumberland Plain Land Snail
Grassland	Birds, mammals, reptiles
Drainage lines	Amphibians, microbats, birds.
Leaf litter (limited)	Cumberland Land Snail, reptiles, some amphibians
Trees with defoliating bark	Microbats, reptiles

5.3.1 Birds

The vegetation remnants and scattered trees provide potential nesting and foraging habitat for woodland bird species particularly those common to disturbed environments. The watercourses dams also provide habitat for a variety of bird species. Birds species recorded during the surveys are listed in Appendix C.

No large hollow-bearing trees were recorded within the study area.

5.3.2 Mammals

There is the potential for microchiropteran bats to forage throughout the vegetation on site. No roosting habitat was recorded on site.

5.3.3 Reptiles

No reptiles were recorded at the site during the inspection although potential habitat in the leaf litter, grass tussocks was present. The grass, tussocks and leaf litter throughout much of the study area provide potential foraging and refuge habitat for a variety of reptiles.

5.3.4 Invertebrates

There was limited leaf litter at the site providing potential habitat for a variety of invertebrates. Limited habitat for the Cumberland Land Snail was present throughout the study area the quality of which was considered low due to the minimal amount of leaf litter, the level of disturbance and grazing. Searches for this species were undertaken in areas supporting suitable habitat. No evidence of CLS was recorded on site.

5.4 THREATENED ECOLOGICAL COMMUNITIES AND THREATENED SPECIES

5.4.1 Endangered Ecological Communities

Two Endangered Ecological Communities were recorded within the study area. RFEF was present along Bells Creek. SGTF was present across much of the study area mainly as scattered paddock trees. A third threatened ecological Community, Cooks River/Castlereagh Ironbark Forest, was potentially interspersed with the SGTF to the south of the site. Due to the disturbed nature of the vegetation on site it was difficult to distinguish between these two communities.

SGTF is listed as Endangered under the TSC Act and Critically Endangered under the EPBC Act. However the SGTF on site was not considered to met the criteria for listing under the EPBC Act. Mapping for this community listed under the TC Act is shown in Figure 3.

RFEF is listed as Endangered under the TSC Act and mapping has been included in Figure 3.

5.4.2 Threatened Flora

Twenty five threatened flora species have previously been recorded within the locality (i.e. 10 km radius) or are considered to have the potential to occur (DECC 2010, DEWHA 2010). An assessment of the potential for threatened flora species to occur at the site and list of species previously recorded within the locality or considered to have the potential to occur has been included in Appendix B.

Two threatened flora species were recorded during the site inspection *Grevillea juniperina* subsp. *juniperina* (a large number of individuals) and *Dillwynia tenuiflora (*1 individual). Figure 3 shows the location of this species across the study area.

The study area also provides potential habitat for *Micromyrtus minutiflora.*

5.4.3 Threatened Fauna

A large number of threatened fauna species have previously been recorded within the locality or are considered to have the potential to occur. An assessment of the potential for threatened species to occur at the site and a list of species previously recorded within the locality or considered to have the potential to occur has been included in Appendix B.

No threatened Fauna was recorded on site, however, potential habitat was also present for the following species:

Birds

- Brown Treecreeper *(Climacteris picumnus victoriae)*
- Varied Sittella (*Daphoenositta chrysoptera)*
- Little Eagle (*Hieraaetus morphnoides)*
- Swift Parrot (*Lathamus discolor*)
- Black-chinned Honeyeater *(Melithreptus gularis gularis)*
- Flame Robin (*Petroica phoenicea*)
- Speckled Warbler *(Pyrrholaemus saggitatus)*
- Painted Snipe (*Rostratula benghalensis*)

Mammals

- Eastern Bentwing-bat (*Miniopterus orianae oceanensis*)
- Large-footed Myotis (*Myotis macropus*)
- Eastern Freetail-bat (*Mormopterus norfolkensis*)

- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*)

Invertebrates

- Cumberland land Snail (*Meriodolum corneovirens*)

Amphibians

- Green and Golden Bell Frog (*Litoria aurea*)

5.4.4 Migratory Fauna

The site has the potential to provide foraging habitat for a number of species listed as migratory, marine, Japan-Australia Migratory Bird Agreement (JAMBA), China-Australia Migratory Bird Agreement (CAMBA) and Republic of Korea–Australia Migratory Bird Agreement (ROKAMBA) species listed as protected under the EPBC Act. Those species for which potential habitat is present at the site are listed below and a complete list of those with the potential to occur within the locality is provided in Appendix B.

- Great Egret (*Ardea alba);*
- Cattle Egret (*Ardea ibis);* and
- Satin Flycatcher (*Myiagra cyanoleuca).*

5.5 CORRIDORS

The study area supports fragmented stands of vegetation that broadly form corridors linking to other remnant vegetation throughout the Marsden Park area. A disturbed corridor along Bells creek is present, with the proposal planning to retain and rehabilitate a riparian corridor resulting in linkages to the north and south of the study area. There is the potential for many bird species to utilise the broad links, although fragmented, to provide shelter, foraging and resting sites when moving throughout the area. Scattered paddock trees are present in the east of the site and often play an important role in providing 'stepping stone' habitat for mobile species through highly cleared landscapes.

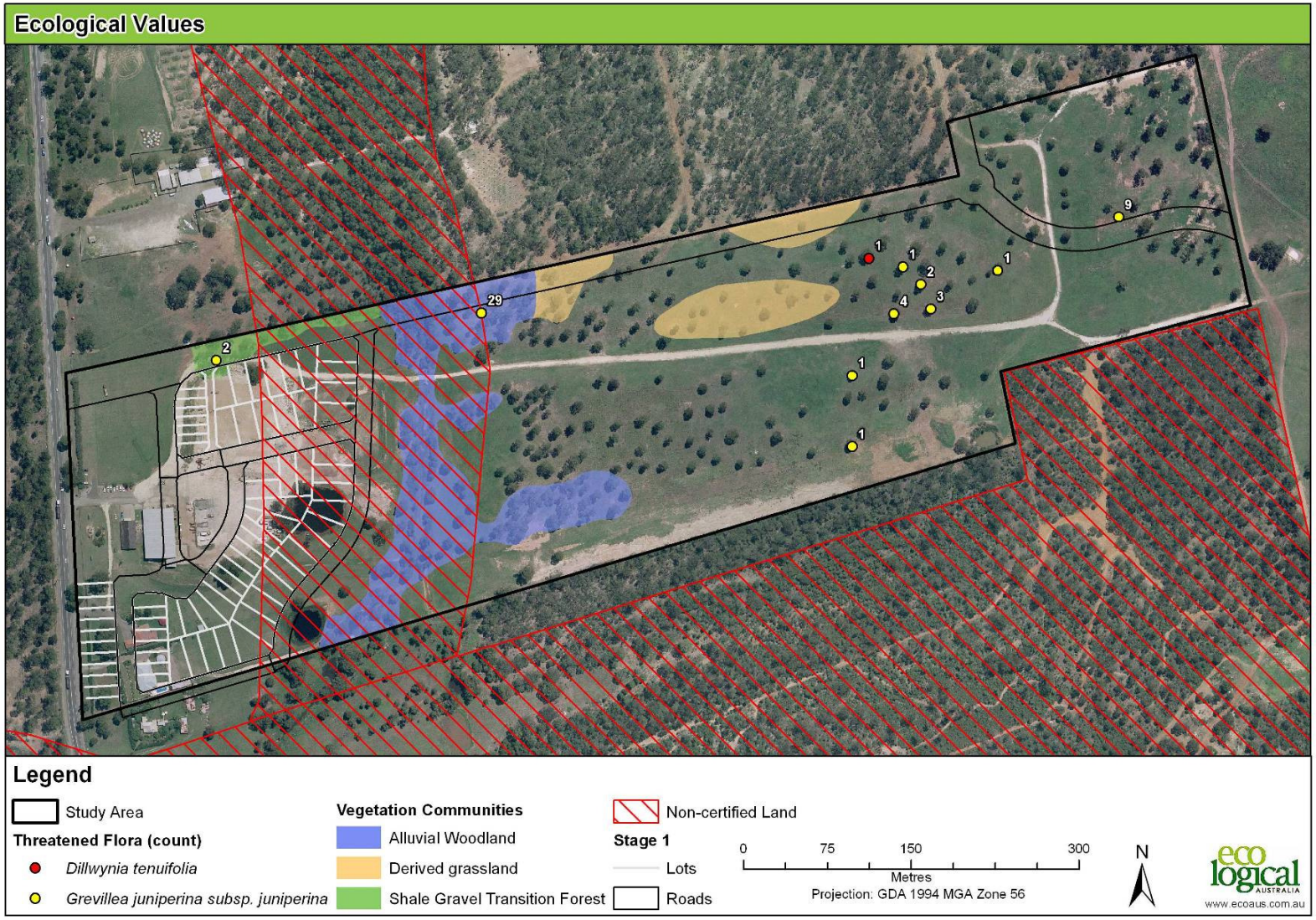

Figure 3: Ecological Values

6 Riparian Areas

Bells Creek has been identified as a Category 1 Environmental Corridor and is specifically addressed in Clause 50 (10) of the Blacktown Local Environment Plan (2008) and Section 2.2 of DCP 2008, Part L.

Field survey of the creek identified that the creek is in poor condition with heavily eroded banks in places. The water was turbid and stagnant with little to no aquatic vegetation. No snags or riffles were present and a large pipe had been placed within the creek. Urban waste was present along fences that cross the creek, indicating a lack of water quality controls in the existing upstream urban area.

Design of the riparian zone has been undertaken to comply with NSW Fisheries (1999) *Policy and Guidelines for Fish Friendly Roads and Waterways Crossings 1999* and NSW Fisheries (1999a) Policy and Guidelines for Aquatic Habitat Management and Fish Conservation. Specifically this has included:

1. Removal of the current pipe (in-stream blockage)
2. Construction of a piered bridge across the creek (provides for aquatic and terrestrial connectivity)
3. Removal of terrestrial and aquatic weeds
4. Revegetation of terrestrial and ephemeral habitats with local provenance native species
5. Treatment of water quality prior to discharging into the creek
6. Stabilisation of active erosion points, attenuation of high frequency flows and sensitive design of outlet structures

Public access will be not be provided into the riparian area. A formal pedestrian network has been identified in the Landscape Masterplan for the site (MNLA, 2010). This includes a path on the development side of the perimeter road and a pedestrian path with the road bridge. Strategic use of plants and location of water treatment/detention devices will reduce the potential for informal access to the riparian area.

Clause 50 (10) of the Blacktown Local Environment Plan (2008) requires the following to be addressed:

(10) In deciding whether to consent to any development on land to which this clause applies that is within 40 metres of Eastern Creek or Bells Creek (when measured from the top of the bank of the creek), the council is to have regard to the following:

> *(a) the nature and function of the riparian environmental corridors affected by the proposed development,*
>
> *(b) the impact of the proposed development on the riparian environment,*
>
> *(c) whether the area has high biological diversity, and*

(d) whether the land has connective importance as part of the corridor of bushland that allows for the potential passage of species of flora or fauna between two or more areas of bushland.

Currently the creek is degraded and includes instream structures and high levels of weed infestation. The approach proposed for the creekline is to rehabilitate and revegetate with local provenance native species that will emulate the natural system. Water quality treatment and detention will also occur in these areas and have been designed in a manner to accommodate revegetation with native species.

The section below addresses the requirements of the LEP and DCP.

(a) the nature and function of the riparian environmental corridors affected by the proposed development,

Currently Bells Creek is highly degraded with altered channel conditions including an online pipe that provides access across the creek. Whilst remnant eucalypts and casuarinas occur in parts of the corridor, the riparian corridor is generally dominated by exotic grasses and provides little connectivity across the site. This creek has however been identified as an environmental corridor.

It is proposed that the riparian corridor is utilised for the purposes of water quality and quantity management and for the provision of habitat connectivity. Water quality and quantity approaches are detailed in the Civil Engineering Report for the site (Cardno, 2010). These areas will be fully revegetated with local provenance native species, thus meeting the objectives of providing an environmental corridor.

(b) the impact of the proposed development on the riparian environment,

The proposed development will include the construction of a bridge across Bells Creek that will require the removal of a small area of native vegetation. Water detention and treatment structures will be constructed in already cleared areas of the riparian corridor. These structures and the remainder of the corridor will be revegetated with local provenance native species. The treatment of urban runoff prior to it entering the creek will lead to an improvement in water quality. Revegetation of the riparian zones will increase the habitat value of the site and provide improved connectivity to proximal areas of vegetation. The impact of the development on this currently degraded site is considered to result in positive outcomes for the riparian environment.

(c) whether the area has high biological diversity, and

Currently the area is heavily degraded with considerable infestations of weeds present. Due to the young nature of the vegetation and lack of structural diversity there is very little habitat for native fauna. The instream condition of the creek is poor, with turbid, stagnant ponds with no presence of aquatic habitat values such as logs/snags and limited native riparian vegetation.

The area is not considered to be of high biological diversity.

(d) whether the land has connective importance as part of the corridor of bushland that allows for the potential passage of species of flora or fauna between two or more areas of bushland.

The land has been identified as a future habitat corridor during the planning of the Colebee Release and also the neighbouring Marsden Park Industrial Precinct. Currently due to the degraded nature of the site connectivity is considered poor, however the proposed revegetation of the riparian zone will improve connectivity to proximal areas of vegetation.

7 Impact Assessment

The impact assessment has been based on:

1. Removal of all vegetation from the stage 1 development area
2. Removal of all vegetation along the length of the connector road
3. Removal of all vegetation within the superlot subdivision

As biodiversity certification has been conferred on the site, by way of including the Colebee Precinct within the Growth Centres SEPP, impact assessment only needs to consider the impacts occurring within non-certified lands. These impacts are restricted to the removal of a small area of Alluvial Woodland (RFEF) and Shale Gravel Transition Forest and the loss of *Grevillea juniperina* associated with the construction of the connector road where it crosses Bells Creek.

Assessment of the impacts of clearing of native vegetation within the non-certified areas is identified in Clause 10 of the Biodiversity Certification Order:

> *10. In the non-certified areas, proposals to clear existing native vegetation shall be subject to the relevant development controls in the SEPP and Sydney Regional Environmental Plan No. 31 – Regional Parklands, and the requirements of the Environmental Planning and Assessment Act 1979.*

The Environmental Planning and Assessment Act, 1979 requires the application of the 7-part test to determine if the impact will be significant. 7-part tests are included in Appendix D. These have determined that the impact will not be significant.

SEPP31 – Regional Parklands does not apply to this development.

The Growth Centres SEPP includes the following provisions relating to clearing of native vegetation:

Part 6 Development controls—vegetation

21 Land to which Part applies

(1) This Part applies to the following land:

(a) land zoned under Part 3,

(b) flood prone and major creeks land,

(c) transitional land,

(d) land that is:

(i) under State Environmental Planning Policy (Western Sydney Parklands) 2009, in an environmental conservation area shown on the State Environmental Planning Policy (Western Sydney Parklands) 2009 Environmental Conservation Areas Map, and

(ii) in a growth centre.

(2) This Part does not apply to land reserved under the National Parks and Wildlife Act 1974, unless the land is land mentioned in subclause (1) (d).

(3) In relation to land in the Oran Park and Turner Road Precincts, this Part applies to land within the Riparian Protection Area shown on the Riparian Protection Area Map.

(4) Despite subclause (1), this Part does not apply to the following:

(a) the North Kellyville Precinct,

(b) the Riverstone West Precinct.

22 Vegetation to which Part applies

(1) This Part applies to native vegetation within the meaning of the Native Vegetation Act 2003.

(2) This Part does not apply to any particular native vegetation that the council of the area concerned is satisfied:

(a) is dying or dead and is not required as the habitat of native fauna, or

(b) is a risk to human life or property.

(3) This Part does not apply to any native vegetation:

(a) within a State forest, or land reserved from sale as a timber or forest reserve under the Forestry Act 1916, or

(b) declared to be noxious weeds under the Noxious Weeds Act 1993.

23 Consent for clearing native vegetation

(1) A person must not clear native vegetation on land to which this Part applies without:

(a) approval under Part 3A of the Act, or

(b) development consent.

*For the purposes of this clause, **clearing native vegetation** has the same meaning as it has in the Native Vegetation Act 2003.*

***Note.** A consent of the relevant consent authority required under this clause for the clearing of native vegetation is in addition to any development consent required or granted by the Minister for Natural Resources under the Native Vegetation Act 2003 in respect of that clearing.*

(2) Development consent under this clause is not to be granted unless the consent authority is satisfied of the following in relation to the disturbance of bushland caused by the clearing of the vegetation:

(a) that there is no reasonable alternative available to the disturbance of the bushland,

(b) that as little bushland as possible will be disturbed,

(c) that the disturbance of the bushland will not increase salinity,

(d) that bushland disturbed for the purposes of construction will be re-instated where possible on completion of construction,

(e) that the loss of remnant bushland caused by the disturbance will be compensated by revegetation on or near the land to avoid any net loss of remnant bushland,

(f) that no more than 0.5 hectare of bushland will be cleared unless the clearing is essential for a previously permitted use of the land.

(3) The consent authority must, when determining a development application in respect of the clearing of native vegetation on land within a zone under Part 3, have regard to the objectives for development in that zone.

(4) This clause does not apply to or in respect of action required or authorised to be done by or under the Electricity Supply Act 1995, the Roads Act 1993, the Sydney Water Act 1994 or the Surveying Act 2002.

With regards to the requirements of the SEPP, consider the following;

(a) that there is no reasonable alternative available to the disturbance of the bushland,

A crossing of Bells Creek is required to link the eastern and western sections of the site. As the creek is of relatively homogenous environmental value, there is no other reasonable alternative that would reduce the impact to bushland.

(b) that as little bushland as possible will be disturbed,

Bushland will only be disturbed for the purposes of a crossing that is using the shortest practical route to cross the creek.

(c) that the disturbance of the bushland will not increase salinity,

The small amount of vegetation to be cleared combined with the extensive area of revegetation of Bells Creek is unlikely to increase salinity.

(d) that bushland disturbed for the purposes of construction will be re-instated where possible on completion of construction,

Revegetation of the creekline will take place as soon as practical after construction.

(e) that the loss of remnant bushland caused by the disturbance will be compensated by revegetation on or near the land to avoid any net loss of remnant bushland,

Bells Creek to a width of 40 metres from the top of bank will be revegetated. This will result in a net increase of vegetation.

(f) that no more than 0.5 hectare of bushland will be cleared unless the clearing is essential for a previously permitted use of the land.

The crossing is approximately 80 metres long and 20 metres wide (1600m²). This is considerably less than 0.5 hectares.

Under the EPBC Act, Assessments of Significance have been undertaken for Matters of National Environmental Significance that may occur on the site. These assessments (Appendix E) have concluded that the proposal is unlikely to have a significant impact.

8 Conclusion

Detailed survey of the site has identified that the site is generally in poor condition, reflecting a long history of grazing on the site and more recent use for light industrial purposes. Whilst elements of native vegetation remain on the site, the nature of the vegetation does not meet the EPBC Act definition of Cumberland Plain Woodland.

With regards to state impact assessment requirements, the bulk of the site is biodiversity certified via the inclusion of the Colebee Precinct within the Growth Centres SEPP. An area of non-certified land extends along Bells Creek. There will be a small area of non-certified land that will be impact through the construction of a bridge across Bells Creek. This will result in the loss of a small area of Shale Gravel Transition Forest and Alluvial Woodland. A number of *Grevillea juniperina* will also be lost. The 7-part tests for these communities and species has concluded that the impact is unlikely to be significant, therefore a Species Impact Statement is not required.

The Assessment of Significance under the Commonwealth EPBC Act has concluded that development is unlikely to result in a significant impact on Matters of National Environmental Significance.

The impacts of this development on this substantially degraded landscape will be largely ameliorated through the revegetation of the Bells Creek riparian corridor that will extend for 40 metres from the top of each bank. This area will also contained water quality treatment and water detention devices that will improve the quality of water within the creek, reduce the erosion of the bed and banks of the creek and ensure that the development does not adversely affect flooding.

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Appendix A: Flora Species List

Native Flora Recorded On Site	
Scientific name	**Common name**
Trees	
Casuarina glauca	Swamp Oak
Eucalyptus crebra	Narrow-leaved Ironbark
Eucalyptus molucanna	Grey Box
Eucalyptus territicornis	Forest Red Gum
Melaleuca decora	
Shrubs	
Bursaria spinosa	Native Blackthorn
Dillwynia tenuifolia	
Grevillea juniperana	Juniper-leaved Grevillea
Kunzea ambigua	Tick Bush
Forbs	
Brunoniella australis	Blue trumpet
Centella asiatica	Indian Peenywort
Cheilanthes sieberi	
Cyperus gracillus	Slender Flat-Sedge
Dianella longifolia	Blue Flax Lily
Einardia trigonos	Fishweed
Glycine tabacina	Glycine
Goodenia hederacea	Forest Goodenia
Hypericum graminium	
Juncus usitalus	
Lomandra filliformis	Wattle Mat-rush
Sida corrugata	Corrugated Sida
Solanum prinophylum	Forest Nightshade
Tricoryne elaitor	Yellow Autumn-lily
Wahlemberjia gracilis	Australian Bluebell
Grasses	
Aristida vegans	Threeawn Speargrass
Austrodanthonia bipartita	Wallaby Grass
Bothriochloa macra	Red Grass
Chloris trunctata	Windmill Grass
Chloris ventricosa	Tall Chloris
Cymbopogan refractus	Barbed wire Grass
Dichelachne micrantha	Shorthair Plumegrass
Echinopogon caespitosus	Bushy Hedgehog-grass
Entolasia browneii	
Microleena stipoides	Weeping Rye Grass
Paspalidium radiatum	
Sporobalus creber	Slender Rat's Tail Grass
Themeda australis	Kangaroo Grass

Weed Flora Recorded on Site	
Scientific name	**Common name**
Shrubs	
Lycium ferocissium	African Boxthorn
Forbs	
Alternanthera pungens	Khaki Weed
Asparagus asparagoides	Bridal Creeper
Bidons pilosa	Cobblers Pegs
Cirsium vulgare	Spear Thistle
Conyza banariensis	Flaxleaf Fleabane
Eleusine indica	Crowsfoot Grass
Eleusine tristachya	Goose Grass
Euphorbia peplus	Petty Surge
Hypochaeris radicata	Catsear
Malva parviflora	Small-flowered Mallow
Oxalis debilis	
Paspalum dilatatum	Paspalum
Plantego lanceolata	Lamb's Tongue
Rumex brownii	Swamp Dock
Senecio madagascarensis	Fireweed
Setaria parviflora	
Sida rhombifolia	Paddy's Lucerne
Sonchus oleraceus	Common Sowthistle
Tradescantia fluminensis	Wandering Jew
Verbena bonariensis	Purpletop
Verbena litoralis	
Grasses	
Chloris gayana	Rhodes Grass
Chloris virgata	Feathertop Rhodes Grass
Cynodon dactylon	Couch
Ehrharta erecta	Panic Veldtgrass
Eragrostis curvula	African lovegrass
Pennisetum clandestinum	Kikuyu Grass

Appendix B: Threatened Species & Communities Likelihood of Occurrence

Threatened flora and communities recorded within the study area or considered to have the potential to occur

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
ECOLOGICAL COMMUNITIES					
Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion		EEC	-	Ranges from forest to low woodland occurring on soils derived of alluvial deposits or shale of the Wianamatta Group. Can intergrade into Shale-Gravel Transition Forest, Castlereagh Swamp Woodland and Castlereagh Scribbly Woodland. Known to occur in Western Sydney around Castlereagh, Holsworthy, Kemps Creek and in the east of the Cumberland Plain.	Yes
Cumberland Plain Woodland		CEEC	CEEC	Woodland community occurring on shale derived soils throughout low rainfall areas of western Sydney.	No
Shale/Gravel Transition Forest		EEC	CEEC	Has an open forest structure and occurs primarily where shallow deposits from ancient river systems overlay shale soils, but also associated with localised concentrations of iron-hardened gravel. A transitional plant community which grades into Cumberland Plain Woodland where the influence of gravel soil declines, and grades into Cooks River/Castlereagh Ironbark Forest or Castlereagh Scribbly Gum Woodland where gravel deposits are thick.	Yes
River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions		EEC		Occurs exclusively along or close to minor watercourses draining soils derived from Wianamatta Shale. Common on soils of recent alluvial deposits and is found on the floodplains of the Hawkesbury-Nepean River.	Yes
FLORA					

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Acacia bynoeana	Bynoe's Wattle	E	V	The species is found in central eastern NSW, from the Hunter District (Morisset) south to the Southern Highlands and west to the Blue Mountains. It has recently been found in the Colymea and Parma Creek areas west of Nowra (DECC 2007). It is found in heath and dry sclerophyll forest, typically on a sand or sandy clay substrate, often with ironstone gravels (DECC 2007). The species seems to prefer open and sometimes slightly disturbed sites (DECC 2007). Characteristic overstorey species include: *Corymbia gummifera*, *Eucalyptus haemastoma*, *E. gummifera, E. parramattensis*, *E. sclerophylla*, *Banksia serrata* and *Angophora bakeri*. Shrubs often associated with the species include *B. spinulosa*, *B. serrata, A. oxycedrus*, *A. myrtifolia* and *Kunzea* spp. (Winning 1992; James 1997). It flowers from September to March and fruits mature in November.	Unlikely
Acacia pubescens		V	V	Associated with on Cumberland Plains Woodlands, Shale / Gravel Forest and Shale / Sandstone Transition Forest. Clay soils, often with ironstone gravel (NPWS 1997, Benson and McDougall 1996).	Unlikely
Allocasuarina glareicola		E	E	This species grows on tertiary alluvial gravels, with yellow clayey subsoil and lateritic soil. These soils are low in fertility and are strongly to very strongly acidic. Rainfall in the area is lower than surrounding regions. The median annual rainfall is 803 mm (measured at the University of Western Sydney), with a summer peak (Wilson & Johnson 1989; Matthes et al. 1996). It is found in the Castlereagh open woodland community, with *Eucalyptus parramattensis, E. fibrosa, E. sclerophylla, Angophora bakeri* and *Melaleuca decora*. Common associated understorey species include *Melaleuca nodosa, Hakea dactyloides, H.sericea, Dillwynia tenuifolia, Micromyrtus minutiflora, Acacia elongata, A. brownei, Themeda australis* and *Xanthorrhoea minor* (Matthes et al. 1996).	Unlikely
Cynanchum elegans	White-flowered Wax Plant	E	E	Climber or twiner with a variable form (DECC 2007). It occurs in dry rainforest gullies, scrub and scree slopes (NPWS 1997). It prefers the ecotone between dry subtropical rainforest and sclerophyll woodland/forest. However has been found in littoral rainforest; *Leptospermum laevigatum – Banksia integrifolia* subsp *integrifolia* coastal scrub; *Eucalyptus tereticornis* aligned open forest/ woodland; *E. maculata* aligned open forest/woodland; and *Melaleuca armillaris* scrub to open scrub (DECC 2007). Flowers between August and May, peaking in November (DECC 2007). Seeds are unlikely to persist in the seedbank (DECC 2007).	Unlikely

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Darwinia biflora		V	V	Erect or spreading shrub to 80cm high. Associated with habitats where weathered shale capped ridges intergrade with Hawkesbury Sandstone, where soils have a higher clay content (NPWS 1999, NPWS 1997, Harden 1993).	Unlikely
Dillwynia tenuifolia		V	V	It has a core distribution within the Cumberland Plain, where it may be locally abundant within scrubby, dry heath areas within Castlereagh Ironbark Forest and Shale/Gravel Transition Forest on tertiary alluvium or laterised clays (DECC 2007). May also be common in the ecotone between these areas and Castlereagh Scribbly Gum Woodland (*ibid.*). Flowers sporadically from August to March.	Yes
Epacris purpurascens var *purpurascens*		V	-	Sydney Sandstone Gully Forest and wet heath with strong clay influences (NPWS 1997). Recorded between Gosford in the north to Avon Dam in the south. Found in a range of habitats, but most have a strong shale soil influence. Killed by fire and re-establishes from soil stored seed (DECC 2007).	No
Eucalyptus sp. Cattai		E1	-	Occurs in scrub, heath and low woodland on sandy soils, sites being generally flat and on ridge tops. Associated soils are laterised clays overlying sandstone.	No
Eucalyptus nicholii	Narrow-leaved Black Peppermint	V	V	Grows in dry grassy woodland, on shallow and infertile soils, mainly on granite (DECC 2007). This species is widely planted as an urban street tree and in gardens but is quite rare in the wild (DECC 2007). It is confined to the New England Tablelands of NSW, where it occurs from Nundle to north of Tenterfield (DECC 2007).	No
Grevillea juniperina subsp. juniperina		V	-	Restricted to red sandy to clay soils – often lateritic on Wianamatta Shale and Tertiary alluvium in Cumberland Plain Woodland and Castlereagh Woodland (NSW Scientific Committee 2000).	Yes
Grevillea parviflora subsp. parviflora	Small Flower Grevillea	V	V	Occurs on sandy clay loam soils, often with lateritic ironstone gravels (DECC 2007). Soils are mostly derived from Tertiary sands or alluvium and from the Mittagong Formation with alternating bands of shale and fine-grained sandstones. Soil landscapes include Lucas Heights and Berkshire Park (DECC 2007). Often occurs in open, slightly disturbed sites such as along tracks. Flowering has been recorded between July to December as well as April-May (DECC 2007).	Unlikely

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Hibbertia superens		E1	-	Occurs in both open woodland and heathland, and appears to prefer open disturbed areas, such as tracksides. Occurs from Baulkham Hills to South Maroota in the northern outskirts of Sydney, where there are currently 16 known sites, and at one locality at Mount Boss, inland from Kempsey. Flowering time is July to December. The species occurs on sandstone ridgetops often near the shale/sandstone boundary.	Unlikely
Lasiopetalum joyceae		V	-	Ridgetop woodland, in heath, woodland or open scrub, often with a clay influence (NPWS 1997).	No
Leucopogon fletcheri var. *fletcheri*		E	-	Occurs in dry eucalypt woodland or in shrubland on clayey lateritic soils, generally on flat to gently sloping terrain along ridges and spurs. Restricted to north-western Sydney between St Albans in the north and Annangrove in the south, within the local government areas of Hawkesbury, Baulkham Hills and Blue Mountains.	No
Marsdenia viridiflora var. *viridiflora*	*Marsdenia viridiflora* R. Br. subsp. *viridiflora* population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas	E2	-	Grows in vine thickets and open shale woodland. Recent records are from Prospect, Bankstown, Smithfield, Cabramatta Creek and St Marys. Previously known north from Razorback Range.	Unlikely
Melaleuca deanei	Deane's Paperbark	V	V	Found in heath on sandstone (DECC 2007), and also associated with woodland on broad ridge tops and slopes on sandy loam and lateritic soils (Benson and McDougall 1998).	No

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Micromyrtus minutiflora	Small-flowered Micromyrtus	E	V	Grows in Castlereagh Scribbly Gum Woodland, Ironbark Forest, Shale/Gravel Transition Forest, open forest on tertiary alluvium and consolidated river sediments. Restricted to the general area between Richmond and Penrith, western Sydney.	Potential
Persoonia hirsuta	Hairy Geebung	E	E	This species occurs in dry sclerophyll eucalypt woodland/forest (Weston & Johnson 1991; Weston 1995), and in shrub-woodland (Harden 1991; Blombery & Maloney 1992). It grows in sandy to stony soils derived from sandstone (Weston & Johnson 1991; Weston 1995b) or very rarely on shale (Harden 1991), from near sea level to 600 m altitude (Weston & Johnson 1991; Weston 1995).	Unlikely
Persoonia nutans		E	E	Associated with dry woodland, Castlereagh Scribbly Gum Woodland, Agnes Banks Woodland and sandy soils associated with tertiary alluvium, occasionally poorly drained (Benson and McDougall 2000). Endemic to the Western Sydney (Benson and McDougall 2000).	Unlikely
Pilularia navae-hollandiae	Austral Pillwort	E1	-	Austral Pillwort grows in shallow swamps and waterways, often among grasses and sedges. It is most often recorded in drying mud as this is when it is most conspicuous. In NSW, Austral Pilwort has been recorded from suburban Sydney, Khancoban, the Riverina between Albury and Urana (including Henty, Walbundrie, Balldale and Howlong) and at Lake Cowal near West Wyalong. The population at Lake Cowal is the only known extant population in NSW.	Unlikely
Pimelea curviflora var curviflora		V	V	Confined to the coastal area of Sydney between northern Sydney in the south and Maroota in the north-west. Former range extended south to the Parramatta River and Port Jackson region including Five Dock, Bellevue Hill and Manly. Occurs on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands.	Unlikely
Pimelea spicata		E	E	In western Sydney, it occurs on an undulating topography of well structured clay soils, derived from Wianamatta shale (DEC 2004). It is associated with Cumberland Plains Woodland (CPW), in open woodland and grassland often in moist depressions or near creek lines (*Ibid.*). Has been located in disturbed areas that would have previously supported CPW (*Ibid.*).	Unlikely

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Pomaderris brunnea	Rufous Pomaderris	V	V	Associated with open forests (Harden, 1990) in association with *Eucalyptus amplifolia, Angophora floribunda, Acacia parramattensis, Bursaria spinosa* and *Kunzea ambigua* (Maryott-Brown & Wilks 1993). It is found on the Colo River, the Nepean R. floodplain at Menangle, in creeklines at Wirrumbirra Sanctuary (Bargo) and on the Hawkesbury R. (Harden 1990; Peacock 1996; Fairley & Moore 2000). The distribution may extend into the southern section of Yengo NP along major creeklines and floodplains (Maryott-Brown & Wilks 1993).	Unlikely
Pterostylis saxicola		E	E	Terrestrial orchid predominantly found in Hawkesbury Sandstone Gully Forest growing in small pockets of soil that have formed in depressions in sandstone rock shelves (NPWS 1997). Known from Georges River National Park, Ingleburn, Holsworthy, Peter Meadows Creek, St Marys Tower (NSW Scientific Committee 1999).	Unlikely
Pultenaea parviflora		E	V	May be locally abundant, particularly within scrubby/dry heath areas within Castlereagh Ironbark Forest and Shale Gravel Transition Forest on tertiary alluvium or laterised clays (DECC 2007). May also be common in ecotone between these communities and Castlereagh Scribbly Gum Woodland (*ibid.*). *Eucalyptus fibrosa* is usually the dominant canopy species (*ibid.*). *E. globoidea, E. longifolia, E. parramattensis, E. sclerophylla and E. sideroxylon* may also be present or co-dominant, with *Melaleuca decora* frequently forming a secondary canopy layer (*ibid.*). Associated species may include *Allocasuarina littoralis, Angophora bakeri, Aristida spp. Banksia spinulosa, Cryptandra spp., Daviesia ulicifolia, Entolasia stricta, Hakea sericea, Lissanthe strigosa, M. nodosa, Ozothamnus diosmifolius* and *Themeda australis* (*ibid.*). Often found in association with other threatened species such as *Dillwynia tenuifolia, Dodonaea falcata, Grevillea juniperina, Micromyrtus minutiflora, Persoonia nutans* and *Styphelia laeta* (*ibid.*). Flowering may occur between August and November (*ibid.*).	Unlikely
Disclaimer: Data extracted from the Atlas of NSW Wildlife and EPBC Act Protected Matters Report are only indicative and cannot be considered a comprehensive inventory.					

E = Endangered; E2 = Endangered Population; V = Vulnerable

Threatened fauna recorded within the study area or considered to have the potential to occur

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
FISH					
Macquarie australasica	Macquarie Perch	-	E	Habitat for the Macquarie perch is bottom or mid-water in slow-flowing rivers with deep holes, typically in the upper reaches of forested catchments with intact riparian vegetation. Macquarie perch also do well in some upper catchment lakes. In some parts of its range, the species is reduced to taking refuge in small pools which persist in midland–upland areas through the drier summer periods.	Unlikely
Prototroctes maraena	Australian Grayling	-	V	Historically, this species occurred in coastal streams from the Grose River southwards through NSW, Vic. and Tas. On mainland Australia, this species has been recorded from rivers flowing east and south of the main dividing ranges. This species spends only part of its lifecycle in freshwater, mainly inhabiting clear, gravel-bottomed streams with alternating pools and riffles, and granite outcrops but has also been found in muddy-bottomed, heavily silted habitat. Grayling migrate between freshwater streams and the ocean and as such it is generally accepted to be a diadromous (migratory between fresh and salt waters) species.	Unlikely
FROGS					
Heleioporus australiacus	Giant Burrowing Frog	V	V	Forages in woodlands, wet heath, dry and wet sclerophyll forest (Ehmann 1997). Associated with semi-permanent to ephemeral sand or rock based streams (Ehmann 1997), where the soil is soft and sandy so that burrows can be constructed (Environment Australia 2000).	Unlikely

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Litoria aurea	Green and Golden Bell Frog	E	V	This species has been observed utilising a variety of natural and man-made waterbodies (Pyke & White 1996) such as coastal swamps, marshes, dune swales, lagoons, lakes, other estuary wetlands, riverine floodplain wetlands and billabongs, stormwater detention basins, farm dams, bunded areas, drains, ditches and any other structure capable of storing water (DECC 2007). Fast flowing streams are not utilised for breeding purposes by this species (Mahony 1999). Preferable habitat for this species includes attributes such as shallow, still or slow flowing, permanent and/or widely fluctuating water bodies that are unpolluted and without heavy shading (DECC 2007). Large permanent swamps and ponds exhibiting well-established fringing vegetation (especially bulrushes–Typha sp. and spikerushes–Eleocharis sp.) adjacent to open grassland areas for foraging are preferable (Ehmann 1997; Robinson 1993). Ponds that are typically inhabited tend to be free from predatory fish such as Mosquito Fish (Gambusia holbrooki) (DECC 2007).	Potential (limited)
Litoria littlejohni	Littlejohn's Tree Frog, Heath Frog	V	V	Littlejohn's Tree Frog has a distribution that includes the plateaus and eastern slopes of the Great Dividing Range from Watagan State Forest (90 km north of Sydney) south to Buchan in Victoria (DECC 2007). It occurs along permanent rocky streams with thick fringing vegetation associated with eucalypt woodlands and heaths among sandstone outcrops. I t appears to be restricted to sandstone woodland and heath communities at mid to high altitude (NSW Scientific Committee 2000). It forages both in the tree canopy and on the ground, and it has been observed sheltering under rocks on high exposed ridges during summer (NSW Scientific Committee 2000). It hunts either in shrubs or on the ground. Breeding is triggered by heavy rain and can occur from late winter to autumn, but is most likely to occur in spring when conditions are favourable. Males call from low vegetation close to slow flowing pools. Eggs and tadpoles are mostly found in slow flowing pools that receive extended exposure to sunlight, but will also use temporary isolated pools (DECC 2007).	Unlikely

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Litoria raniformis	Southern Bell Frog	E	V	Relatively still or slow-flowing sites such as billabongs, ponds, lakes or farm dams, especially where bulrushes (Typha sp., Eleocharis sp. and Phragmites sp.) are present (DECC 2007; Ehmann 1997). This species is common in lignum shrublands, black box and River Red Gum woodlands, irrigation channels and at the periphery of rivers in the southern parts of NSW (DECC 2007). This species occurs in vegetation types such as open grassland, open forest and ephemeral and permanent non-saline marshes and swamps (DECC 2007). Open grassland and ephemeral permanent non-saline marshes and swamps have also been associated with this species (Ehmann 1997).	Unlikely
REPTILES					
Hoplocephalus bungaroides	Broad-headed Snake	E	V	Typical sites consist of exposed sandstone outcrops and benching where the vegetation is predominantly woodland, open woodland and/or heath on Triassic sandstone of the Sydney Basin (DECC 2007). They utilise rock crevices and exfoliating sheets of weathered sandstone during the cooler months and tree hollows during summer (Webb & Shine 1998b). Some of the canopy tree species found to regularly co-occur at known sites include *Corymbia eximia, C. gummifera, Eucalyptus sieberi, E. punctata* and *E.piperita* (DECC 2007).	Unlikely
DIURNAL BIRDS					
Anthochaera Phrygia *(aka Xanthomyza phrygia)*	Regent Honeyeater	E	E, M	Associated with temperate eucalypt woodland and open forest including forest edges, wooded farmland and urban areas with mature eucalypts, and riparian forests of River Oak (Casuarina cunninghamiana) (Garnett 1993). Areas containing Swamp Mahogany (Eucalyptus robusta) in coastal areas have been observed to be utilised (NPWS 1997). The Regent Honeyeater primarily feeds on nectar from box and ironbark eucalypts and occasionally from banksias and mistletoes (NPWS 1995). As such it is reliant on locally abundant nectar sources with different flowering times to provide reliable supply of nectar (Environment Australia 2000).	Unlikely
Botaurus poiciloptilus	Australasian Bittern	V	-	Terrestrial wetlands with tall dense vegetation, occasionally estuarine habitats (Marchant & Higgins 1993). Reedbeds, swamps, streams, estuaries (Simpson & Day 1999).	Unlikely

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Callocephalon fimbriatum	Gang-gang Cockatoo	V	-	During summer in dense, tall, wet forests of mountains and gullies, alpine woodlands (Morcombe 2004). In winter they occur at lower altitudes in drier more open forests and woodlands, particularly box-ironbark assemblages (Shields & Chrome 1992). They sometimes inhabit woodland, farms and suburbs in autumn/winter (Simpson & Day 2004).	Unlikely
Calyptorhynchus banksii	Red-tailed Black-Cockatoo	V	-	Occurs in coastal forests and woodlands or inland open shrubland near water (Simpson & Day 1999). This species is noted to feed mainly on seeds, especially of eucalypts, casuarinas, acacia and banksias. May also take berries, nectar, flowers and occasionally insects and their larvae (Marchant & Higgins 1993).	Unlikely
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	-	Associated with a variety of forest types containing Allocasuarina species, usually reflecting the poor nutrient status of underlying soils (Environment Australia 2000; NPWS 1997; DECC 2007). Intact drier forest types with less rugged landscapes are preferred (DECC 2007). Nests in large trees with large hollows (Environment Australia 2000).	Unlikely
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	-	Distributed through central NSW on the western side of the Great Dividing Range and sparsely scattered to the east of the Divide in drier areas such as the Cumberland Plain of Western Sydney, and in parts of the Hunter, Clarence, Richmond and Snowy River valleys. The Brown Treecreeper occupies eucalypt woodlands, particularly open woodland lacking a dense understorey. It is sedentary and nests in tree hollows within permanent territories. (NSW Scientific Committee 2001).	Potential
Daphoenositta chrysoptera	Varied Sittella	V	V	Inhabits most of Australia with a nearly discontinuous distribution in NSW from the coast to the far west. Occupies eucalypt forests and woodlands particularly species with rough bark and mature smooth barked species with dead branches, and acacia woodland. It feeds on athropods from crevices in the rough bark, dead branches and standing dead trees. It nests in the upright tree fork in living tree canopies often reusing the same fork or tree for successive years (DECCW).	Potential

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	Associated with tropical and warm temperate terrestrial wetlands, estuarine and littoral habitats, and occasionally woodlands and grasslands floodplains (Marchant & Higgins 1993). Forages in fresh or saline waters up to 0.5m deep, mainly in open fresh waters, extensive sheets of shallow water over grasslands or sedgeland, mangroves, mudflats, shallow swamps with short emergent vegetation and permanent billabongs and pools on floodplains (Marchant & Higgins 1993; DECC 2007).	No
Hieraaetus morphnoides	Little Eagle	V	-	Occupies open eucalypt forest, woodland or open woodland using sheoak, acacia and riparian woodlands of interior NSW. It nests in tall living trees within a remnant patch where a large stick nest is built. Preys on birds, reptiles and mammals and occasionally, large insects and carrion.	Yes
Lathamus discolor	Swift Parrot	E	E	Breeds in Tasmania between September and January. Migrates to mainland in autumn, where it forages on profuse flowering Eucalypts (Blakers et al. 1984; Schodde and Tidemann 1986; Forshaw and Cooper 1981). Hence, in this region, autumn and winter flowering eucalypts are important for this species. Favoured feed trees include winter flowering species such as Swamp Mahogany (Eucalyptus robusta), Spotted Gum (Corymbia maculata), Red Bloodwood (C. gummifera), Mugga Ironbark (E. sideroxylon), and White Box (E. albens) (DECC 2007).	Potential
Lophoictinia isura	Square-tailed Kite	V	-	In coastal areas associated tropical and temperate forests and woodlands on fertile soils with an abundance of passerine birds (Marchant & Higgins 1993, DECC 2007). May be recorded inland along timbered watercourses (DECC 2007). In NSW it is commonly associated with ridge or gully forests dominated by Woollybutt (Eucalyptus logifloria), Spotted Gum (E. maculata), or Peppermint Gum (E. elata, E. smithii) (DECC 2007).	Unlikely
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	-	Predominantly associated with box-ironbark association woodlands and River Red Gum (NSW Scientific Committee, 2001). Also associated with drier coastal woodlands of the Cumberland Plain and the Hunter, Richmond and Clarence Valleys (NSW Scientific Committee, 2001).	Potential

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Neophema pulchella	Turquoise Parrot	V	-	Steep rocky ridges and gullies, rolling hills, valleys and river flats and the plains of the Great Dividing Range compromise the topography inhabited by this species (Marchant & Higgins 1993). Spends much of the time on the ground foraging on seed and grasses (DECC 2007). It is associated with coastal scrubland, open forest and timbered grassland, especially low shrub ecotones between dry hardwood forests and grasslands with high proportion of native grasses and forbs (Environment Australia 2000).	Unlikely
Oxyura australis	Blue-billed Duck	V	-	The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation (DECC 2007). The species is completely aquatic, swimming low in the water along the edge of dense cover (DECC 2007). It will fly if disturbed, but prefers to dive if approached (DECC 2007). Blue-billed Ducks are partly migratory, with short-distance movements between breeding swamps and over-wintering lakes with some long-distance dispersal to breed during spring and early summer (DECC 2007). Young birds disperse in April-May from their breeding swamps in inland NSW to non-breeding areas on the Murray River system and coastal lakes (DECC 2007).	Unlikely
Petroica boodang	Scarlet Robin	V	-	Found from SE Qld to SE Australia from the coast to the inland slopes. Lives in dry eucalypt forests and woodlands (both mature and regrowth) with an open and grassy understorey and abundant logs and fallen timber. Birds forage on small insects and invertebrates from low perches, fence-posts or on the ground. They nest often in a dead branch or fork of a tree usually more than 2m above the ground.	Unlikely
Petroica phoenicea	Flame Robin	V	-	Endemic to SE Australia from near the Qld border to SE South Australia and Tasmania. It breeds in upland areas of moist eucalypt forests and woodlands, with clear or open understoreys, often on ridges and slopes. In winter known to inhabitat dry forests, open woodlands and in pasture and native grasslands with or without scattered trees. Nests are often near the ground in shallow cavities in trees stumps or banks. Forages on small invertebrates from the ground, tree trunks and other woody debris.	Potential
Pyrrholaemus sagittatus	Speckled Warbler	V	-	Occupies a wide range of eucalypt dominated communities with a grassy understorey, often on rocky ridges or in gullies (DECC 2007). Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy (DECC 2007). Large, relatively undisturbed remnants are required for the species to persist in an area (DECC 2007). Pairs are sedentary and occupy a breeding territory of about ten hectares, with a slightly larger home-range when not breeding (DECC 2007).	Potential

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Rostratula. benghalensis	Painted Snipe (Australian subspecies)	E	V, M	Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber (DECC 2007). Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds (*ibid.*). Breeding is often in response to local conditions; generally occurs from September to December (DECC 2007). Roosts during the day in dense vegetation (NSW Scientific Committee 2004). Forages nocturnally on mud-flats and in shallow water (DECC 2007). Feeds on worms, molluscs, insects and some plant-matter (*ibid.*).	Potential
NOCTURNAL BIRDS					
Ninox connivens	Barking Owl	V	-	Associated with a variety of habitats such as savanna woodland, open eucalypt forests, wetland and riverine forest. The habitat is typically dominated by Eucalypts (often Redgum species), however often dominated by Melaleuca species in the tropics (DECC 2007). It usually roosts in dense foliage in large trees such as River She-oak (Allocasuarina cunninghamiana), other Casuarina and Allocasuarina, eucalypts, Angophora, Acacia and rainforest species from streamside gallery forests (NPWS 2003). It usually nests near watercourses or wetlands (NPWS 2003) in large tree hollows with entrances averaging 2-29 metres above ground, depending on the forest or woodland structure and the canopy height (Debus 1997).	Unlikely
Ninox strenua	Powerful Owl	V	-	Powerful Owls are associated with a wide range of wet and dry forest types with a high density of prey, such as arboreal mammals, large birds and flying foxes (Environment Australia 2000, Debus & Chafer 1994). Large trees with hollows at least 0.5m deep are required for shelter and breeding (Environment Australia 2000).	Unlikely
MAMMALS (EXCLUDING BATS)					

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Dasyurus maculatus *Dasyurus maculatus maculatus*	Spotted-tailed Quoll Spotted-tailed Quoll (SE Mainland Population)	V -	- E	The Spotted-tailed Quoll inhabits a range of forest communities including wet and dry sclerophyll forests, coastal heathlands and rainforests (Mansergh 1984; DECC 2007j), more frequently recorded near the ecotones of closed and open forest. This species requires habitat features such as maternal den sites, an abundance of food (birds and small mammals) and large areas of relatively intact vegetation to forage in (DECC 2007). Maternal den sites are logs with cryptic entrances; rock outcrops; windrows; burrows (Environment Australia 2000).	No
Petaurus australis	Yellow-bellied Glider	V	-	This species is restricted to tall mature forests, preferring productive tall open sclerophyll forests with a mosaic of tree species including some that flower in winter (Environment Australia 2000, Braithwaite 1984, Davey 1984, Kavanagh 1984; DECC 2007). Large hollows within mature trees are required for shelter, nesting and breeding (Henry and Craig 1984; DECC 2007).	No
Petrogale penicillata	Brush-tailed Rock-wallaby	E	V	Brush-tailed Rock-wallaby extends from south-east Queensland to the Grampians in western Victoria, roughly following the line of the Great Dividing Range. Occupies rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges facing north. Browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees.	No
Phascolarctos cinereus	Koala	V	-	Associated with both wet and dry Eucalypt forest and woodland that contains a canopy cover of approximately 10 to 70% (Reed et al. 1990), with acceptable Eucalypt food trees. Some preferred Eucalyptus species are: Eucalyptus tereticornis, E. punctata, E. cypellocarpa, E. viminalis	Unlikely

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Potorous tridactylus *Potorous tridactylus tridactylus*	Long-nosed Potoroo Long-nosed Potoroo (SE Mainland Population)	V -	- V	Associated with dry coastal heath and dry and wet sclerophyll forests (Strahan 1998) with dense cover for shelter and adjacent more open areas for foraging (Menkhorst & Knight 2004).	No
MAMMALS (BATS)					
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	The Large-eared Pied Bat has been recorded in a variety of habitats, including dry sclerophyll forests, woodland, sub-alpine woodland, edges of rainforests and wet sclerophyll forests (Churchill 1998; DECC 2007). This species roosts in caves, rock overhangs and disused mine shafts and as such is usually associated with rock outcrops and cliff faces (Churchill 1998; DECC 2007).	Unlikely
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	-	Prefers moist habitats with trees taller than 20m (DECC 2007). Roosts in tree hollows but has also been found roosting in buildings or under loose bark (DECC 2007).	Unlikely
Miniopterus schreibersii oceanensis	Eastern Bent-wing Bat	V	-	Associated with a range of habitats such as rainforest, wet and dry sclerophyll forest, monsoon forest, open woodland, paperbark forests and open grassland (Churchill 1998). It forages above and below the tree canopy on small insects (AMBS 1995, Dwyer 1995, Dwyer 1981). Will utilise caves, old mines, and stormwater channels, under bridges and occasionally buildings for shelter (Environment Australia 2000, Dwyer 1995).	Potential
Mormopterus norfolkensis	East Coast Freetail Bat	V	-	Most records of this species are from dry eucalypt forest and woodland east of the Great Dividing Range (Churchill 1998). Individuals have, however, been recorded flying low over a rocky river in rainforest and wet sclerophyll forest and foraging in clearings at forest edges (Environment Australia 2000; Allison & Hoye 1998). Primarily roosts in hollows or behind loose bark in mature eucalypts, but have been observed roosting in the roof of a hut (Environment Australia 2000; Allison & Hoye 1998).	Potential

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Myotis macropus	Southern Myotis	V	-	The Large-footed Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. It is rarely found more than 100 km inland, except along major rivers. Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. (DEC 2005)	Potential
Pteropus poliocephalus	Grey-headed Flying-Fox	V	V	Inhabits a wide range of habitats including rainforest, mangroves, paperbark forests, wet and dry sclerophyll forests and cultivated areas (Churchill 1998, Eby 1998). Camps are often located in gullies, typically close to water, in vegetation with a dense canopy (Churchill 1998).	Potential
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	Found in almost all habitats, from wet and dry sclerophyll forest, open woodland (Churchill 1998), open country, mallee, rainforests, heathland and waterbodies (SFNSW 1995). Roosts in tree hollows; may also use caves; has also been recorded in a tree hollow in a paddock (Environment Australia 2000) and in abandoned sugar glider nests (Churchill 1998). The Yellow-bellied Sheathtail-bat is dependent on suitable hollow-bearing trees to provide roost sites, which may be a limiting factor on populations in cleared or fragmented habitats (Environment Australia 2000).	Potential
Scoteanax rueppellii	Greater Broad-nosed Bat	V	-	Associated with moist gullies in mature coastal forest, or rainforest, east of the Great Dividing Range (Churchill, 1998), tending to be more frequently located in more productive forests (Hoye & Richards 1998). Within denser vegetation types use is made of natural and man made openings such as roads, creeks and small rivers, where it hawks backwards and forwards for prey (Hoye & Richards 1998).	Unlikely
INVERTEBRATES					
Meridolum corneovirens	Cumberland (Large) Land Snail	E	-	Associated with open eucalypt forests, particularly Cumberland Plain Woodland described in Benson (1992). Found under fallen logs, debris and in bark and leaf litter around the trunk of gum trees or burrowing in loose soil around clumps of grass (NPWS 1997; Rudman 1998). Urban waste may also form suitable habitat (NSW NPWS 1997; Rudman 1998).	Potential

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
MIGRATORY SPECIES LISTED UNDER EPBC ACT					
Apus pacificus	Fork-tailed Swift	-	M	Sometimes travels with Needletails. Varied habitat with a possible tendency to more arid areas but also over coasts and urban areas (Simpson & Day 1999).	Unlikely
Ardea alba	Great Egret	-	M	The Great Egret is common and widespread in Australia (McKilligan, 2005). It forages in a wide range of wet and dry habitats including permanent and ephemeral freshwaters, wet pasture and estuarine mangroves and mudflats (McKilligan, 2005).	Potential
Ardea ibis	Cattle Egret	-	M	Cattle Egrets forage on pasture, marsh, grassy road verges, rain puddles and croplands, but not usually in the open water of streams or lakes and they avoid marine environments (McKilligan, 2005). Some individuals stay close to the natal heronry from one nesting season to the next, but the majority leave the district in autumn and return the next spring. Cattle Egrets are likely to spend the winter dispersed along the coastal plain and only a small number have been recovered west of the Great Dividing Range (McKilligan, 2005).	Yes
Gallinago hardwickii	Latham's Snipe	-	M	A variety of permanent and ephemeral wetlands, preferring open fresh water wetlands with nearby cover (Marchant and Higgins 1999). Occupies a variety of vegetation around wetlands (Marchant and Higgins 1999) including wetland grasses and open wooded swamps (Simpson and Day 1999).	Unlikely
Haliaeetus leucogaster	White-bellied Sea-Eagle	-	M	Forages over large open fresh or saline waterbodies, coastal seas and open terrestrial areas (Marchant & Higgins 1993, Simpson & Day 1999). Breeding habitat consists of tall trees, mangroves, cliffs, rocky outcrops, silts, caves and crevices and is located along the coast or major rivers. Breeding habitat is usually in or close to water, but may occur up to a kilometre away (Marchant & Higgins 1993).	Unlikely
Hirundapus caudacutus	White-throated Needletail	-	M	Forages aerially over a variety of habitats usually over coastal and mountain areas, most likely with a preference for wooded areas (Marchant & Higgins 1993; Simpson & Day 1999). Has been observed roosting in dense foliage of canopy trees, and may seek refuge in tree hollows in inclement weather (Marchant & Higgins 1993).	Unlikely

Scientific Name	Common Name	TSC Act	EPBC Act	Habitat Associations	Likelihood of Occurrence
Merops ornatus	Rainbow Bee-eater	-	M	Resident in coastal and subcoastal northern Australia; regular breeding migrant in southern Australia, arriving September to October, departing February to March, some occasionally present April to May (Pizzey and Doyle 1988). Occurs in open country, chiefly at suitable breeding places in areas of sandy or loamy soil: sand-ridges, riverbanks, road-cuttings, sand-pits, occasionally coastal cliffs (*ibid*). Nest is a chamber a the end of a burrow, up to 1.6 m long, tunnelled in flat or sloping ground, sandy back or cutting (*ibid*).	Unlikely
Monarcha melanopsis	Black-faced Monarch	-	M	Rainforest and eucalypt forests, feeding in tangled understorey (Blakers et al. 1984).	Unlikely
Myiagra cyanoleuca	Satin Flycatcher	-	M	Wetter, denser forest, often at high elevations (Simpson & Day 2004).	Potential
Rhipidura rufifrons	Rufous Fantail	-	M	The Rufous Fantail is a summer breeding migrant to southeastern Australia (Morcombe, 2004). The Rufous Fantail is found in rainforest, dense wet eucalypt and monsoon forests, paperbark and mangrove swamps and riverside vegetation (Morcombe, 2004). Open country may be used by the Rufous Fantail during migration (Morcombe, 2004).	Unlikely

Disclaimer: Data extracted from the Atlas of NSW Wildlife and DEW Protected Matters Report are only indicative and cannot be considered a comprehensive inventory. 'Migratory marine species' and 'listed marine species' listed on the EPBC Act (and listed on the DEW protected matters report) have not been included in this table, since they are considered unlikely to occur within the study area due to the absence of marine habitat.

E = Endangered; E2 = Endangered Population; V = Vulnerable; M = Migratory.

Appendix C: Fauna recorded across study area

	Scientific Name	Common Name
Amphibians	*Crinia signifera*	Common Eastern Froglet
Aves	*Ardea ibis*	Cattle Egret
	Corvus coronoides	Australian Raven
	Dacelo novaeguineae	Laughing Kookaburra
	Grallina cyanoleuca	Magpie-lark
	Manorina melanocephala	Noisy Miner
	Platycercus adscitus eximius	Eastern Rosella
	Vanellus miles	Masked Lapwing

Appendix D: EP&A Act Assessment of Significance (7-Part Test)

The Assessment of Significance (7-part test) is applied to species, populations and ecological communities listed on Schedules 1, 1A and 2 of the TSC Act and Schedules 4, 4A and 5 of the Fisheries Management Act. The assessment sets out 7 factors, which when considered, allow proponents to undertake a qualitative analysis of the likely impacts of an action and to determine whether further assessment is required via a Species Impact Statement (SIS). All factors must be considered and an overall conclusion made based on all factors in combination. An SIS is required if, through application of the 7-part test, an action is considered likely to have a significant impact on a threatened species, population or ecological community.

As most of the site is biodiversity certified 7-part tests are only required for species/ecosystems that will be impacted within non-certified areas. This will occur due to the removal of vegetation required for construction of a road across Bells Creek. The threatened species that are the subject of 7-part tests for this proposal include:

Endangered Ecological Communities

- Shale Gravel Transition forest
- River Flat Eucalypt Forest

Flora

- *Grevillea juniperina* subsp. *juniperina* (Juniper leaved Grevillea)

SHALE GRAVEL TRANSITION FOREST

Shale Gravel Transition Forest is an endangered ecological community listed under the TSC Act and a component of the critically endangered ecological community 'Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest' listed under the EPBC Act.

Shale Gravel Transition Forest occurs within the northern sections of the Cumberland Plain in association with deposits of tertiary alluvium overlying shale soils or localised occurrences of iron-hardened gravel. It primarily occurs as an open-forest with a small tree-layer and sparse shrub layer (DECCW 2010c).

Shale Gravel Transition Forest has been extensively cleared for agriculture and rural development with an estimated 36% of the original distribution of about 7000 ha remaining and much of this is in a degraded state (NSW NPWS 2000a). Threats to this community include further clearing and fragmentation, grazing, inappropriate fire regimes and weed invasion.

a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

Shale Gravel Transition Forest is not a threatened species.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction

Shale Gravel Transition Forest is not an endangered population.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

Elements of Shale Gravel Transition Forest occur within the road crossing on the non-certified lands. The bulk of the vegetation to be impacted is on the western side of Bells Creek. This small remnant of vegetation is isolated and in poor condition. Removal of this vegetation will not place the local occurrence of this ecological community at risk of extinction.

ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

The proposed works would involve the removal of a very small amount of isolated SGTF consisting of scattered trees and a small number of shrubs. It is unlikely that impacts to these areas would place the local occurrence of this community at an increased risk of extinction.

d) in relation to the habitat of a threatened species, population or ecological community:

i. the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The action proposed is to construct a road and subdivide the land and prepare for development.

The proposed works will result in the removal of a small amount of relatively disturbed SGTF.

ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The proposed works would involve clearing of disturbed SGTF. This small remnant is isolated from other areas of the community and plays little if any role in connecting proximal areas of vegetation. The loss of this small area of vegetation is unlikely to increase the fragmentation or isolation of habitat in the locality.

iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long term survival of the species, population or ecological community in the locality.

The small amount of SGTF to be removed represents highly disturbed stands of this community. Given the small size and disturbed nature of this area to be removed it is not considered to be of importance to the long term survival of this community.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

No critical habitat has been declared for Shale Gravel Transition Forest. .

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

No recovery plan has been prepared for SGTF, however, DECCW has prepared a Draft Cumberland Plain Recovery Plan that covers a number of threatened species, populations and ecological communities that occur on the Cumberland plain, including SGTF. The plan identifies actions to be taken covering the following 4 areas: building a protected area network comprising of public and private lands; delivering best practice management to remnant bushland on the Cumberland Plain; raise community awareness and understanding; and increase knowledge of the threats to the survival of the threatened biodiversity of the Cumberland Plain to enable better management of threats. The proposal is not inconsistent with actions outlined in the draft plan.

No relevant threat abatement plan has been prepared for SGTF.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

A key threatening process is defined under the TSC Act as "*a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities*". The action proposed constitutes one key threatening process listed under the TSC Act, clearing of native vegetation. The small amount of Shale Gravel Transition Forest to be cleared has already been heavily disturbed and is subject to edge effects.

Conclusion of the 7 Part Test for Shale Gravel Transition Forest

Given the small amount of Shale Gravel Transition Forest to be removed by the proposed works and the poor quality of this vegetation it is considered unlikely that the development will significantly impact upon Shale Gravel Transition Forest. Consequently, a Species Impact Statement is not required for the proposed works with respect to this community.

RIVER-FLAT EUCALYPT FOREST ON COASTAL FLOODPLAINS OF THE NSW NORTH COAST, SYDNEY BASIN AND SOUTH EAST CORNER BIOREGIONS

River-Flat Eucalypt-Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (RFEF) is an endangered ecological community listed under the TSC Act. This community is an open forest which occurs on silts, clay-loams and sandy loams, on alluvial flats, drainage lines and river terraces associated with coastal floodplains. RFEF occurs south from Port Stephens in the NSW North Coast, Sydney Basin and South East Corner Bioregion.

This community has suffered large amounts of clearing for grazing, markets gardens and other cropping enterprises, with less than 30% of its total original extent estimated as remaining (NSW Scientific Committee 2004) and less than one-quarter of the original extent on the Cumberland Plain (Tozer 2003). Ongoing clearing and fragmentation is recognised as a threat to this community along with urban and industrial development, flood mitigation and drainage works, changes in water quality, weed invasion, and frequent burning which reduces the diversity of woody plant species.

a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

RFEF is not a threatened species.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction

RFEF is not an endangered population.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

A small area of RFEF on non-certified lands will be removed as part of the crossing of Bells Creek. The loss of this small area combined with the revegetation of Bells Creek is unlikely to place the local occurrence at risk of extinction.

ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

The proposed works would involve the removal of a small area of RFEF on site with a large area being retained and enhanced in a proposed riparian corridor. As such it is unlikely that impacts would place the local occurrence of this community at an increased risk of extinction, particularly considering the larger areas of this vegetation community along Bells Creek.

d) in relation to the habitat of a threatened species, population or ecological community:

i. the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The action proposed is to subdivide the land and prepare for development including earthworks and the construction of roads.

The proposed works will result in the removal of a small area of RFEF on site with a large area retained and enhanced in a proposed riparian corridor along Bells Creek.

ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The proposed works would not fragment or isolate any currently interconnected stands of RFEF however it will enhance areas of RFEF in a riparian corridor along Bells Creek. As a bridge is being constructed movement of terrestrial species will be possible under the bridge.

iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long term survival of the species, population or ecological community in the locality.

The area of RFEF being removed is minor and when combined with the revegetation works taking place along Bells Creek will improve the long term survival of this community in the locality.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

No critical habitat has been declared for RFEF.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

No recovery plan has been prepared for RFEF, however, DECCW has prepared a Draft Cumberland Plain Recovery Plan that covers a number of threatened species, populations and ecological communities that occur on the Cumberland plain, including RFEF. The plan identifies actions to be taken covering the following 4 areas: building a protected area network comprising of public and private lands; delivering best practice management to remnant bushland on the Cumberland Plain; raise community awareness and understanding; and increase knowledge of the threats to the survival of the threatened biodiversity of the Cumberland Plain to enable better management of threats. The proposal is not inconsistent with actions outlined in the draft plan.

No relevant threat abatement plan has been prepared for RFEF.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

A key threatening process is defined under the TSC Act as "*a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities*". The action proposed constitutes one key threatening

process listed under the TSC Act, clearing of native vegetation. However, no RFEF will be cleared as part of this proposal.

Conclusion of the 7 Part Test for RFEF

Given that only a small area of RFEF will be cleared by the proposed works and that an area RFEF will be retained and enhanced along Bells Creek in a riparian corridor, the proposed works are considered unlikely to significantly impact upon RFEF. Consequently, a Species Impact Statement is not required for the proposed works with respect to this community.

JUNIPER-LEAVED GREVILLEA (*GREVILLEA JUNIPERINA SUBSP. JUNIPERINA*)

Endemic to Western Sydney, this shrub is listed as vulnerable and its population extent is centred on an area bounded by Blacktown, Erskine Park, Londonderry and Windsor with outlier populations at Kemps Creek and Pitt Town. This species grows on reddish clay to sandy soils derived from Wianamatta Shale and Tertiary alluvium (often with shale influence), typically containing lateritic gravels (DECCW 2010d).

G. juniperina has been recorded from Cumberland Plain Woodland, Castlereagh Ironbark Woodland, Castlereagh Scribbly Gum Woodland and Shale/Gravel Transition Forest. Physical disturbance of the soil appears to result in an increase in seedling recruitment and this species has a tendency to colonise mechanically disturbed areas (DECCW 2010d).

Approximately 29 individuals of *G. juniperina* were recorded on the north-eastern side of Bells Creek. Conservatively this 7-part test has considered that all of these individuals are located within the non-certified lands.

a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

Approximately twenty nine (29) individuals of this species have been located on the north-eastern side of Bells Creek along the border of the non-certified lands. This species is locally abundant and occurs along Bells Creek and also within the bushland to the north and south of the site. Give the large numbers of this plant in close proximity to the individuals that will be lost, the development is unlikely to place a viable local population at risk of extinction.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction

This is not an endangered population.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

- **i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**
- **ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.**

This is not an endangered or critically endangered ecological community.

d) in relation to the habitat of a threatened species, population or ecological community:

- **i. the extent to which habitat is likely to be removed or modified as a result of the action proposed, and**

A small amount of habitat will be removed and approximately 29 plants will be lost from the non-certified lands. Revegetation will take place along the Bells Creek riparian corridor and it is proposed to use *Grevillea juniperina* during these works.

ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

A small area of habitat will be lost, however the revegetation of Bells Creek is likely to substantially improve connectivity of proximal areas of habitat in the area.

iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long term survival of the species, population or ecological community in the locality,

The area of potential Juniper-leaved Grevillea habitat to be removed under the current proposal is small with respect to the amount of similar habitat available throughout the region. The species is locally abundant and the loss of 29 individuals is unlikely to reduce the long term survival of the species in the locality.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

No critical habitat of this species has been identified.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

No recovery plan has been prepared for *G. juniperina*, however, DECCW has prepared a Draft Cumberland Plain Recovery Plan that covers a number of threatened species, populations and ecological communities that occur on the Cumberland plain, including *G. juniperina*. The plan identifies actions to be taken covering the following 4 areas: building a protected area network comprising of public and private lands; delivering best practice management to remnant bushland on the Cumberland Plain; raise community awareness and understanding; and increase knowledge of the threats to the survival of the threatened biodiversity of the Cumberland Plain to enable better management of threats. The proposal is not inconsistent with actions outlined in the draft plan.

No relevant threat abatement plan has been prepared for *G. juniperina*.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

The clearing of native vegetation is a major threat to the Juniper-leaved Grevillea (DECCW 2010b). The proposed action does constitute the key threatening process of clearing of native vegetation under the *Threatened Species Conservation Act 1995*.

However, the scale of these impacts within the study area is not considered to be significant in relation to Juniper-leaved Grevillea habitat requirements.

Conclusion of the 7 Part Test for Juniper-leaved Grevillea

Under the proposed action, there will be the loss of approximately 29 individuals and some impact upon the potential habitat for the Juniper-leaved Grevillea in the non-certified areas. Given that the number of individuals impacted the area of potential habitat to be cleared is small and that similar habitat is available throughout the locality the impact of this proposal on the Juniper-leaved Grevillea, as determined through the above 7-part test, is not considered to be significant.

Appendix E: Assessments of Significance – Species Protected under the EPBC Act

The *EPBC Act* Administrative Guidelines on Significance set out **'Significant Impact Criteria'** that are to be used to assist in determining whether a proposed action is likely to have a significant impact on matters of national environmental significance. Matters listed under the *EPBC Act* as being of national environmental significance include:

- Listed threatened species and ecological communities
- Listed Migratory species
- Wetlands of International Importance
- The Commonwealth marine environment
- World Heritage properties
- National Heritage places
- Nuclear actions

Specific **'Significant Impact Criteria'** are provided for each matter of national environmental significance, except for threatened species and ecological communities, in which case separate criteria are provided for species listed as endangered and vulnerable under the *EPBC Act*.

Threatened and migratory species listed only under the *EPBC Act* that are considered known likely or potentially to occur within the study area are:

- *Dillwynia tenuiflora*
- *Micromyrtus minutiflora*
- Green and Golden Bell Frog (*Litoria aurea*)
- Swift Parrot (*Lathamus discolor*)
- Painted Snipe *(Rostratula benghalensis s. lat.)*
- Varied Sittella (*Daphoenositta chrysoptera)-*
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Great Egret (*Ardea alba)*
- Cattle Egret (*Ardea ibis)*
- Satin Flycatcher (*Myiagra cyanoleuca)*

The relevant Significant Impact Criteria have been applied to these threatened and migratory species to determine the significance of impact of the proposed works.

Matters to be addressed	Impact (Commonwealth Legislation)
(a) any environmental impact on a World Heritage Property;	No. There are no World Heritage Areas within the study area.
(b) any environmental impact on Wetlands of International Importance;	No. There are no Wetlands of International Importance within the study area.
(c) any environmental impact on Commonwealth Listed Threatened Species and Ecological Communities;	Yes. The listed species that have the potential to be impacted by the proposed works include; • Swift Parrot (*Lathamus discolor)* – Endangered • Painted Snipe *(Rostratula benghalensis s. lat.)* - Endangered • *Dillwynia tenuiflora* - Vulnerable • *Micromyrtus minutiflora* - Vulnerable • Varied Sittella (*Daphoenositta chrysoptera)*- Vulnerable • Grey-headed Flying-fox (*Pteropus poliocephalus)* – Vulnerable • Green and Golden Bell Frog (*Litoria aurea*) – Vulnerable **Endangered Species** **SWIFT PARROT (*LATHAMUS DISCOLOR)*** Swift Parrots are winter migrants to the south-eastern Australia mainland from Tasmania, where they feed on winter flowering eucalypts, such as forest red gum (*Eucalyptus tereticornis*) (DECCW 2010e). The Swift Parrot is a highly mobile species able to utilise a variety of nectar sources over large areas (DECC 2010e). Potential habitat for the Swift Parrot to pass through or forage exists within the areas of SGTF and RFEF within the study area and surrounds. ***a. lead to a long-term decrease in the size of a population of a species, or*** The site for the proposed works provides potential foraging habitat for the swift parrot, including winter flowering eucalypts, such as forest red gum (*Eucalyptus tereticornis*). Potential habitat offering similar foraging habitat is common within adjacent areas including Shane's Park, the RTA offset lands adjacent to the M7 Motorway and the Bells Creek Riparian Corridor. Given that only a small area of clearing will occur as a result of the works, greater foraging habitat for the swift parrot occurs adjacent to the study area and that this species is a wide ranging mobile species the proposed action will not lead to a long-term decrease in the size of the population within the locality.

Matters to be addressed	Impact (Commonwealth Legislation)
	b. reduce the area of occupancy of a population, or
	The site for the proposed action provides, potential foraging habitat for the Swift Parrot, including winter flowering eucalypts, such as forest red gum (*Eucalyptus tereticornis*). Potential habitat offering similar foraging habitat is common within adjacent areas including Shane's Park, the RTA offset lands adjacent to the M7 Motorway and the Bells Creek Riparian Corridor.
	Given that only a small area of clearing relative to better quality habitat in the region, greater foraging habitat for the Swift Parrot occurs adjacent to the study area and that this species is a wide ranging mobile species the proposed action is considered unlikely to lead to a reduction in the area of occupancy of a population of the Swift Parrot.
	c. fragment an existing population into two or more populations, or
	The site for the proposed works provides, potential foraging habitat for the Swift Parrot, including winter flowering eucalypts, such as forest red gum (*Eucalyptus tereticornis*). Potential habitat offering similar foraging habitat is common within adjacent areas including Shane's Park, the RTA offset lands adjacent to the M7 Motorway and the Bells Creek Riparian Corridor.
	Given that only a small area of clearing relative to better quality habitat in the region, greater foraging habitat for the Swift Parrot occurs adjacent to the study area and that this species is a wide ranging mobile species the proposed action is considered unlikely to lead to the fragmentation of an existing population of the Swift Parrot.
	d. adversely affect habitat critical to the survival of a species, or
	This species commonly inhabits south-eastern Australian forest and woodland in winter, foraging upon winter flowering eucalypt species.
	The study area provides relatively moderate habitat potential for the Swift Parrot, given the fragmented nature of the remnants. The clearing of the potential habitat within the site will not adversely affect habitat critical to the survival of the species in the locality, and will not significantly affect the overall survival of the species. The greatest potential habitat for the Swift parrot in the locality occurs within areas to be protected as part of the RTA offset lands adjacent to the M7 Motorway.
	e. disrupt the breeding cycle of a population, or
	The study area does not provide potential habitat for breeding, and therefore the proposed action will not disrupt the breeding cycle of a population.
	f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or

Matters to be addressed	Impact (Commonwealth Legislation)
	The proposed works will remove a small amount of remnant SGTF that potentially provides foraging habitat for the Swift Parrot. The removal of this vegetation is not likely to cause the decline of the species in the locality by reducing the availability of habitat, and is unlikely to cause an overall decline in the species. ***g. result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*, or*** The proposed works are unlikely to result in invasive species that are harmful to the swift parrot becoming established in the remaining habitat in the locality. ***h. interfere with the recovery of the species.*** The proposed works will clear areas of potential habitat that provide potential habitat to the Swift Parrot for foraging, but it will be unlikely to interfere substantially with the overall recovery of the species. **Conclusion** It is unlikely that the impact of the proposed works on the Swift Parrot will be significant. **PAINTED SNIPE (ROSTRATULA BENGHALENSIS)** The Painted Snipe has a scattered distribution in Australia, primarily occurring along the east coast. This species inhabits inland and coastal shallow freshwater wetlands, occurring in both ephemeral and permanent wetlands, particularly where there is grass. Individuals have been spotted in artificial dams, sewage ponds and waterlogged grasslands. Potential habitat for the Painted Snipe to forage, breed or pass through, exist along Bells Creek. ***a. lead to a long-term decrease in the size of a population of a species, or*** The site for the proposed works provides potential foraging habitat for the Painted Snipe along Bells Creek. Potential habitat offering similar foraging habitat extends along the riparian corridor along Bells Creek. No vegetation representing potential habitat for the Painted Snipe will occur as a result of the proposal. A riparian corridor will be retained and rehabilitated along the creek and as such it is unlikely that the proposed action would lead to a long-term decrease in the size of the population within the locality. ***b. reduce the area of occupancy of a population, or*** The site for the proposed works provides potential foraging habitat for the

Matters to be addressed	Impact (Commonwealth Legislation)
	Painted Snipe along Bells Creek. Potential habitat offering similar foraging habitat extends along the riparian corridor along Bells Creek. No vegetation representing potential habitat for the Painted Snipe will occur as a result of the proposal. A riparian corridor will be retained and rehabilitated along the creek and as such it is unlikely that the proposed action would lead to a reduction in the area of occupancy of a population of the Painted Snipe. ***c. fragment an existing population into two or more populations, or*** The site for the proposed works provides potential foraging habitat for the Painted Snipe along Bells Creek. Potential habitat offering similar foraging habitat extends along the riparian corridor along Bells Creek. No vegetation representing potential habitat for the Painted Snipe will occur as a result of the proposal. A riparian corridor will be retained and rehabilitated along the creek and as such the proposed action is considered unlikely to lead to the fragmentation of an existing population of the Painted Snipe. ***d. adversely affect habitat critical to the survival of a species, or*** This species commonly inhabits south-eastern Australian forest and woodland in winter, foraging upon winter flowering eucalypt species. The study area provides relatively moderate habitat potential for the Swift Parrot, given the fragmented nature of the remnants. No vegetation representing potential habitat for the Painted Snipe will occur as a result of the proposal and a riparian corridor will be retained and rehabilitated along the creek and as such the proposal will not significantly affect the overall survival of the species. ***e. disrupt the breeding cycle of a population, or*** The study area does not provide potential habitat for breeding, and therefore the proposed action will not disrupt the breeding cycle of a population. ***f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or*** No vegetation representing potential habitat for the Painted Snipe will occur as a result of the proposal. A riparian corridor will be retained and rehabilitated along the creek and as such the proposal is unlikely to cause the decline of the species in the locality by reducing the availability of habitat, and is unlikely to cause an overall decline in the species. ***g. result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*, or***

Matters to be addressed	Impact (Commonwealth Legislation)

The proposed works are unlikely to result in invasive species that are harmful to the Painted Snipe becoming established in the remaining habitat in the locality.

h. interfere with the recovery of the species.

No vegetation representing potential habitat for the Painted Snipe will occur as a result of the proposal. A riparian corridor will be retained and rehabilitated along the creek and as such the proposal is unlikely to interfere substantially with the overall recovery of the species.

Conclusion

It is unlikely that the impact of the proposed works on the Painted Snipe will be significant.

Vulnerable Species

DILLWYNIA TENUIFOLIA

The core distribution is the Cumberland Plain from Windsor to Penrith east to Deans Park. Other populations in western Sydney are recorded from Voyager Point and Kemps Creek in the Liverpool LGA, Luddenham in the Penrith LGA and South Maroota in the Baulkham Hills Shire. Disjunct localities include: the Bulga Mountains at Yengo in the north, Kurrajong Heights and Woodford in the Lower Blue Mountains (DECCW 2010f)

In western Sydney, may be locally abundant particularly within scrubby/dry heath areas within Castlereagh Ironbark Forest and Shale Gravel Transition Forest on tertiary alluvium or laterised clays. May also be common in transitional areas where these communities adjoin Castlereagh Scribbly Gum Woodland (DECCW2010f).

One individual of *Dillwynia tenuifolia* was recorded to the east of the site within the boundary of the superlots. Potential habitat for *Dillwynia tenuifolia* within the impact area exists within the areas of remnant SGTF.

a. lead to a long-term decrease in the size of a population of a species, or

Dillwyinia tenuifolia has the potential to occur within the remnants of SGTF on site and in the surrounding area. Only a small amount of disturbed SGTF will be removed as part of the proposal. Targeted surveys for this species were carried out and one individual was recorded in the impact zone. Given the amount of suitable habitat nearby and that only one individual will be removed, it is unlikely that the proposed action will lead to a long term decrease in the size of a population of the *Dillwyinia tenuifolia*.

Matters to be addressed	Impact (Commonwealth Legislation)
	b. reduce the area of occupancy of a population, or *Dillwyinia tenuifolia* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Only a small amount of disturbed SGTF will be removed as part of the proposal. Targeted surveys for this species were carried out and one individual was located in the impact zone. Given the amount of suitable habitat nearby and that only one individual will be removed, it is unlikely that the proposed action will reduce the area of occupancy of a population of *Dillwyinia tenuifolia*. ***c. fragment an existing population into two or more populations, or*** *Dillwyinia tenuifolia* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Only a small amount of disturbed SGTF will be removed as part of the proposal. Targeted surveys for this species were carried out and one individual was located in the impact zone. Given the amount of suitable habitat nearby and that only one individual will be removed, it is unlikely that the proposed action will fragment an existing population of *Dillwyinia tenuifolia* into two or more populations. ***d. adversely affect habitat critical to the survival of a species, or*** *Dillwyinia tenuifolia* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Only a small amount of disturbed SGTF will be removed as part of the proposal. Targeted surveys for this species were carried out and one individual was located in the impact zone. Given the amount of suitable habitat nearby and that only one individual will be removed, it is unlikely that the proposed action will adversely affect habitat critical to the survival of *Dillwyinia tenuifolia*. ***e. disrupt the breeding cycle of a population, or*** *Dillwyinia tenuifolia* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Only a small amount of disturbed SGTF will be removed as part of the proposal. Targeted surveys for this species were carried out and one individual was located in the impact zone. Given the amount of suitable habitat nearby and that only one individual will be removed, it is unlikely that the proposed action will disrupt the breeding cycle of a population of *Dillwyinia tenuifolia*. ***f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or*** *Dillwyinia tenuifolia* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Only a small amount of disturbed SGTF will be removed as part of the proposal. Targeted surveys for this species were carried out and one individual was located in the impact zone. Given the amount of suitable habitat nearby and that only one individual will be removed,

Matters to be addressed	Impact (Commonwealth Legislation)

it is unlikely that the proposed action will modify, destroy, remove or isolate or decrease the availability or quantity of habitat to the extent that *Dillwyinia tenuifolia* is likely to decline.

g. result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*, or

Dillwyinia tenuifolia has the potential to occur within the remnants of SGTF on site and in the surrounding area. Only a small amount of disturbed SGTF will be removed as part of the proposal. Targeted surveys for this species were carried out and one individual was located in the impact zone. Given the amount of suitable habitat nearby and that only one individual will be removed, it is unlikely that the proposed action will result in invasive species that are harmful to *Dillwyinia tenuifolia* being established such that it would impact significantly on *Dillwyinia tenuifolia* habitat.

h. interfere with the recovery of the species.

Dillwyinia tenuifolia has the potential to occur within the remnants of SGTF on site and in the surrounding area. Only a small amount of disturbed SGTF will be removed as part of the proposal. Targeted surveys for this species were carried out and one individual was located in the impact zone. Given the amount of suitable habitat nearby and that only one individual will be removed, it is unlikely that the proposed action will interfere with the recovery of *Dillwyinia tenuifolia*.

Conclusion

It is unlikely that the impact of the proposed works to *Dillwyinia tenuifolia* will be significant.

MICROMYRTUS MINUTIFLORA

Micromyrtus minutiflora is a slender spreading shrub that is restricted to the Cumberland Plain and generally the area between Richmond and Penrith (Fairley 2004).

This species occurs on tertiary alluvium with clay and gravel elements and in sandy-clay soils associated with the old floodplain in the Castlereagh area. The vegetation communities which occur on tertiary alluvium, and represent habitat for this species, include Castlereagh Scribbly Gum Woodland, Castlereagh Ironbark Forest and Shale Gravel Transition Forest.

Existing populations of this species are highly fragmented due to clearing for agricultural and urban development and are further threatened by clearing for urban development, frequent fire and habitat degradation. Various activities

Matters to be addressed	Impact (Commonwealth Legislation)
	contribute to habitat degradation across its range including illegal rubbish dumping, weed invasion, arson, grazing and trail bike riding. The SGTF within the study area represents potential habitat for this species however, this species was not detected on site during field surveys. ***a. lead to a long-term decrease in the size of a population of a species,*** *Micromyrtus minutiflora* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Targeted surveys for this species have been carried out and no individuals were located on site or in the immediate vicinity of the works. Therefore it is unlikely that the proposed action will lead to a long term decrease in the size of a population of the *Micromyrtus minutiflora*. ***b. reduce the area of occupancy of a population, or*** *Micromyrtus minutiflora* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Targeted surveys for this species have been carried out and no individuals were located on site or in the immediate vicinity of the works. Therefore it is unlikely that the proposed action will reduce the area of occupancy of a population of *Micromyrtus minutiflora*. ***c. fragment an existing population into two or more populations, or*** *Micromyrtus minutiflora* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Targeted surveys for this species have been carried out and no individuals were located on site or in the immediate vicinity of the works. Therefore it is unlikely that the proposed action will fragment an existing population of *Micromyrtus minutiflora* into two or more populations. ***d. adversely affect habitat critical to the survival of a species, or*** *Micromyrtus minutiflora* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Targeted surveys for this species have been carried out and no individuals were located on site or in the immediate vicinity of the works. Therefore it is unlikely that the proposed action will adversely affect habitat critical to the survival of *Micromyrtus minutiflora*. ***e. disrupt the breeding cycle of a population, or*** *Micromyrtus minutiflora* has the potential to occur within the remnants of SGTF on site and in the surrounding area. Targeted surveys for this species have been carried out and no individuals were located on site or in the immediate vicinity of the works. Therefore it is unlikely that the proposed action will disrupt the breeding cycle of a population of *Micromyrtus minutiflora*. ***f. modify, destroy, remove or isolate or decrease the availability or***

Matters to be addressed	Impact (Commonwealth Legislation)
	quality of habitat to the extent that the species is likely to decline, or
	Micromyrtus minutiflora has the potential to occur within the remnants of SGTF on site and in the surrounding area. Targeted surveys for this species have been carried out and no individuals were located on site or in the immediate vicinity of the works. Therefore it is unlikely that the proposed action will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that *Micromyrtus minutiflora* is likely to decline.
	g. result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*, or
	Micromyrtus minutiflora has the potential to occur within the remnants of SGTF on site and in the surrounding area. Targeted surveys for this species have been carried out and no individuals were located on site or in the immediate vicinity of the works. Therefore it is unlikely that the proposed action will result in invasive species that are harmful to *Micromyrtus minutiflora* becoming established within important areas of *Micromyrtus minutiflora* habitat.
	h. interfere with the recovery of the species.
	Micromyrtus minutiflora has the potential to occur within the remnants of SGTF on site and in the surrounding area. Targeted surveys for this species have been carried out and no individuals were located on site or in the immediate vicinity of the works. Therefore it is unlikely that the proposed action will interfere with the recovery of *Micromyrtus minutiflora*.
	Conclusion
	It is unlikely that the impact of the proposed works to *Micromyrtus minutiflora* will be significant.
	VARIED SITTELLA (*DAPHOENOSITTA CHRYSOPTERA*)
	The Varied Sittella mainly inhabits eucalypt forests and woodlands favouring rough barked species and mature smooth barked gums with dead branches. Their diet is largely comprised of arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and from small branches and twigs in the tree canopy. It builds a nest in upright tree forks in the tree canopy often reusing the same fork or tree in successive years.
	Potential habitat for the Varied Sittella to forage, breed or pass through exists within the area in patches of SGTF.
	a. lead to a long-term decrease in the size of a population of a species, or
	The site for the proposed works provides potential foraging habitat for the Varied Sittella in areas of SGTF. Potential habitat offering similar foraging

Matters to be addressed	Impact (Commonwealth Legislation)
	habitat is common within adjacent areas and nearby in Shane's Park, the RTA offset lands adjacent to the M7 Motorway and the Bells Creek Riparian Corridor. Given that only a small area of clearing will occur as a result of the works, greater foraging habitat for the Varied Sittella occurs adjacent to the study area and that this species is a wide ranging mobile species the proposed action will not lead to a long-term decrease in the size of the population within the locality. ***b. reduce the area of occupancy of a population, or*** The site for the proposed action provides, potential foraging habitat for the Varied Sittella in areas of SGTF. Potential habitat offering similar foraging habitat is common within nearby areas including Shane's Park, the RTA offset lands adjacent to the M7 Motorway and the Bells Creek Riparian Corridor. Given that only a small area of clearing relative to better quality habitat in the region, greater foraging habitat for the Varied Sittella occurs adjacent to the study area and that this species is a wide ranging mobile species the proposed action is considered unlikely to lead to a reduction in the area of occupancy of a population of the Varied Sittella. ***c. fragment an existing population into two or more populations, or*** The site for the proposed action provides, potential foraging habitat for the Varied Sittella in areas of SGTF. Potential habitat offering similar foraging habitat is common within nearby areas including Shane's Park, the RTA offset lands adjacent to the M7 Motorway and the Bells Creek Riparian Corridor. Given that only a small area of clearing relative to better quality habitat in the region, greater foraging habitat for the Varied Sittella occurs adjacent to the study area and that this species is a wide ranging mobile species the proposed action is considered unlikely to lead to the fragmentation of an existing population of the Varied Sittella. ***d. adversely affect habitat critical to the survival of a species, or*** This species commonly inhabits south-eastern Australian forest and woodland in winter, foraging upon eucalypt species. The study area provides relatively moderate habitat potential for the Varied Sittella, given the fragmented nature of the remnants. The clearing of the potential habitat within the site will not adversely affect habitat critical to the survival of the species in the locality, and will not significantly affect the overall survival of the species. The greatest potential habitat for the Varied Sittella in the locality occurs within areas to be protected as part of the RTA offset lands adjacent to the M7 Motorway.

Matters to be addressed	Impact (Commonwealth Legislation)
	e. disrupt the breeding cycle of a population, or
	The site for the proposed action provides, potential foraging habitat for the Varied Sittella in areas of SGTF. Potential habitat offering similar foraging habitat is common within nearby areas including Shane's Park, the RTA offset lands adjacent to the M7 Motorway and the Bells Creek Riparian Corridor.
	Given that only a small area of clearing relative to better quality habitat in the region, greater foraging habitat for the Varied Sittella occurs adjacent to the study area and that this species is a wide ranging mobile species the proposed action is considered unlikely to disrupt the breeding cycle of a population.
	f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or
	The proposed works will remove a small amount of remnant SGTF that potentially provides foraging habitat for the Varied Sittella. The removal of this vegetation is not likely to cause the decline of the species in the locality by reducing the availability of habitat, and is unlikely to cause an overall decline in the species.
	g. result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*, or
	The proposed works are unlikely to result in invasive species that are harmful to the Varied Sittella becoming established in the remaining habitat in the locality.
	h. interfere with the recovery of the species.
	The proposed works will clear areas of potential habitat that provide potential habitat to the Varied Sittella for foraging, but it will be unlikely to interfere substantially with the overall recovery of the species.
	Conclusion
	It is unlikely that the impact of the proposed works on the Varied Sittella will be significant.
	GREY-HEADED FLYING-FOX (*PTEROPUS POLIOCEPHALUS*)
	The grey-headed flying-fox was not recorded within the study area during the field survey. The Grey-headed Flying-fox (GHFF) utilises a wide variety of habitats (including disturbed areas) for foraging, and are recorded as travelling long distances on feeding forays (Churchill 1998).
	Potential habitat for the grey-headed flying-fox to forage, or pass through, exists

Matters to be addressed	Impact (Commonwealth Legislation)
	wihin the areas of SGTF and RFEF on site. ***a. lead to a long-term decrease in the size of a population of a species, or*** The proposed road upgrade will remove a small amount of SGTF that could be potentially used by the GHFF as habitat to forage or pass through. Potential habitat offering higher foraging habitat quality is common within nearby aareas including Shane's Park, the RTA offset lands adjacent to the M7 Motorway, and the Bells Creek Riparian Corridor. Given that greater foraging habitat for the GHFF occurs adjacent to the study area, the lack of records in site, the wide ranging habit of this species and the disturbed nature of the vegetation to be removed it is considered unlikely that the proposed action will lead to a long term decrease in the size of a population of the GHFF. ***b. reduce the area of occupancy of a population, or*** The proposed road upgrade will remove a small amount of SGTF that could be potentially used by the GHFF as habitat to forage or pass through. Potential habitat offering higher foraging habitat quality is common within nearby aareas including Shane's Park, the RTA offset lands adjacent to the M7 Motorway, and the Bells Creek Riparian Corridor. Given that greater foraging habitat for the GHFF occurs adjacent to the study area, the lack of records in site, the wide ranging habit of this species and the disturbed nature of the vegetation to be removed it is considered unlikely that the proposed action will lead to a reduction in the area of occupancy of a population of the GHFF. ***c. fragment an existing population into two or more populations, or*** The proposed action will not fragment an existing population of the GHFF into two or more populations. The GHFF can travel up to 50 km during nightly feeding forays and can migrate up to 750 km during winter migrations (Churchill 1998). Given the high mobility of this species it is unlikely that areas of habitat will be fragmented or isolated. There have been no previous recordings of a grey-headed flying-fox population camping within the site, and furthermore the habitat to be impacted is small in area, and utilised only for foraging or to pass through. ***d. adversely affect habitat critical to the survival of a species, or*** This species commonly forages on fruits and flowering plants of a wide variety of species are the main food source. The study area provides relatively low habitat potential for the GHFF, given the fragmented nature of the remnants. The clearing of the potential habitat within the study area will not adversely affect habitat critical to the survival of the species in the locality, and will not

Matters to be addressed	Impact (Commonwealth Legislation)
	significantly affect the overall survival of the species. ***e. disrupt the breeding cycle of a population, or*** The study area does not provide potential habitat for breeding, given that this species roosts in large 'camps' of up to 200 000 individuals, and that camps are usually formed close to water and along gullies however the species has been known to form camps in urban areas (Churchill 1998). Therefore, the proposal will not disrupt the breeding cycle of a population. ***f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or*** The proposed road upgrade will remove a small amount of SGTF that may potentially provide habitat for the GHFF to pass through or forage. A riparian corridor of RFEF will be retained and rehabilitated along bells creek. The removal of vegetation as a result of the proposal is not likely to cause the decline of the species in the locality by reducing the availability of habitat, and is unlikely to cause an overall decline in the species. ***g. result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*, or*** The proposed works may increase in the extent of invasive weeds present on the site, however, it is unlikely to result in invasive species that are harmful to the GHFF becoming established in the remaining habitat in the locality. ***h. interfere with the recovery of the species.*** The proposed works will clear an area of low quality habitat that may be valuable to the GHFF to pass through, but it will be unlikely to interfere substantially with the overall recovery of the species. **Conclusion** It is unlikely that the impact of the proposed works to the Grey-headed Flying-fox is will be significant. **GREEN AND GOLDEN BELL FROG (*LITORIA AUREA*)** *Litoria aurea* (Green and Golden Bell Frog; GGBF) was once considered common throughout its predominately coastal range encompassing the coastal areas between Brunswick Head in north-east NSW and North-east Victoria and extending as far west as Bathurst. The species is now estimated to be absent from at least 90% of this area being limited to fragmented populations (DEC 2005). Within western Sydney a population referred to as the 'St Marys

Matters to be addressed	Impact (Commonwealth Legislation)
	population' is known to occur, consisting of a number of sub-populations on lands at St Marys, Mt Druitt, Prospect and Riverstone (DEC 2005). The species appears to use a number of habitat components during different parts of its life cycle including breeding, foraging and refuge habitat and habitat to facilitate movement patterns. The ideal breeding habitat for GGBFs is shallow, still or slow flowing waterbodies without heavy shading. This incorporates a range of waterbodies including both natural and man-made waterbodies including estuarine and fresh water wetlands through to minor structures such as tanks, wells and water troughs (DEC 2005). In addition to aquatic breeding sites GGBFs utilise terrestrial habitats, generally peripheral to breeding habitat, for foraging and / or refuge. GGBFs appear to favour terrestrial areas with extensive grassy areas and an abundance of shelter sites such as rocks and logs. Refuge habitat is required by the species during periods of metabolic quiescence particularly during the cooler parts of the year but also when not diurnally active or seeking shelter from adverse conditions or predators (DEC 2005). This species was not detected during the field surveys although marginal foraging and refuge habitat was identified within the site and surrounding areas. ***a. lead to a long-term decrease in the size of a population of a species, or*** Bells Creek and intermittent drainage lines represent potential foraging and refuge areas for the GGBF. These areas are not considered to be good quality habitat for the GGBF as they are highly disturbed, common in the area and no GGBFs have been recorded within these drainage lines. These areas are to be retained in a riparian corridor along Bells Creek. As such the proposal is not considered likely to lead to a long-term decrease in the size and population of the Green and Golden Bell Frog. ***b. reduce the area of occupancy of a population, or*** Bells Creek and intermittent drainage lines represent potential foraging and refuge areas for the GGBF. These areas are not considered to be good quality habitat for the GGBF as they are highly disturbed, common in the area and no GGBFs have been recorded within these drainage lines. These areas are to be retained in a riparian corridor along Bells Creek. As such the proposal is not considered likely to reduce the area of occupancy of a population of the Green and Golden Bell Frog. ***c. fragment an existing population into two or more populations, or*** The proposed works would not fragment an existing population of the GGBF into two or more populations.

Matters to be addressed	Impact (Commonwealth Legislation)
	d. adversely affect habitat critical to the survival of a species, or
	Bells Creek and intermittent drainage lines represent potential foraging and refuge areas for the GGBF. These areas are not considered to be good quality habitat for the GGBF as they are highly disturbed, common in the area and no GGBFs have been recorded within these drainage lines. These areas are to be retained in a riparian corridor along Bells Creek. As such the proposal is not considered likely that the works will adversely affect habitat critical to the survival of the Green and Golden Bell Frog.
	e. disrupt the breeding cycle of a population, or
	Bells Creek and intermittent drainage lines represent potential foraging and refuge areas for the GGBF. These areas are not considered to be good quality habitat for the GGBF as they are highly disturbed, common in the area and no GGBFs have been recorded within these drainage lines. These areas are to be retained in a riparian corridor along Bells Creek. Therefore it is unlikely that the proposed action will disrupt the breeding cycle of a population of the Green and Golden Bell Frog.
	f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or
	Bells Creek and intermittent drainage lines represent potential foraging and refuge areas for the GGBF. These areas are not considered to be good quality habitat for the GGBF as they are highly disturbed, common in the area and no GGBFs have been recorded within these drainage lines. These areas are to be retained in a riparian corridor along Bells Creek. Therefore it is considered unlikely that the proposed works will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the GGBF is likely to decline.
	g. result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat*, or
	The proposed action is unlikely to result in invasive species that are harmful to the GGBF becoming established in the remaining habitat in the locality.
	h. interfere with the recovery of the species.
	Bells Creek and intermittent drainage lines represent potential foraging and refuge areas for the GGBF. These areas are not considered to be good quality habitat for the GGBF as they are highly disturbed, common in the area and no GGBFs have been recorded within these drainage lines. These areas are to be retained in a riparian corridor along Bells Creek. Therefore it is considered unlikely that the proposed action will interfere with the recovery of the GGBF.

Matters to be addressed	Impact (Commonwealth Legislation)
	Conclusion It is unlikely that the impact of the proposed works on the GGBF will be significant.
(c) any environmental impact on Commonwealth Listed Migratory Species;	Yes, but impact will be minor and not result in significant impacts to these species. Three Commonwealth listed migratory species are considered to potentially occur within the study area, including: • Great Egret (*Ardea alba)* • Cattle Egret (*Ardea ibis)* • Satin Flycatcher (*Myiagra cyanoleuca)* **GREAT EGRET (*ARDEA ALBA*)** ***a. Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species.*** Great Egrets occur throughout most of the world. They are common throughout Australia, with the exception of the most arid areas. This species prefers shallow water, particularly when flowing, but may be seen on any watered area, including damp grasslands. The proposed works will not significantly modify habitat for this species, therefore it is not considered likely that the works will modify, destroy of isolate a substantial area of habitat. ***b. Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species.*** The current proposed works will not result in the establishment of an invasive species that is harmful to the Great Egret. ***c. Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.*** The proposed works will impact upon potential habitat for the Great Egret, however given the limited quality of potential habitat to be impacted (intermittent drainage lines and Bells Creek), there is not likely to be any significant disruption to the lifecycle of the Great Egret. **CATTLE EGRET *(ARDEA IBIS)*** ***a. Substantially modify (including by fragmenting, altering fire***

Matters to be addressed	Impact (Commonwealth Legislation)

regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species.

The Cattle Egret, forages in moist pasture with tall grass as well as shallow open wetlands and margins. This species also utilises mudflats. The proposed works will not significantly modify habitat for this species, therefore it is not considered likely that the works will modify, destroy of isolate a substantial area of habitat.

b. Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species.

The proposed works will not result in the establishment of an invasive species that is harmful to the Cattle Egret.

c. Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

The proposed works will impact upon potential habitat for the Cattle Egret, however given the poor quality of potential habitat to be impacted (disturbed remnants and grassland), there is not likely to be any significant disruption to the lifecycle of the Cattle Egret.

SATIN FLYCATCHER (*MYIAGRA CYANOLEUCA*)

a. substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species;

The Satin Flycatcher is found along the east coast of Australia from far north Queensland to Tasmania, including south-eastern South Australia. The Satin Flycatcher is found in tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests.

The removal of potential foraging habitat would occur as a result of the proposal However, given that the potential habitat is limited, and there is more appropriate habitat available outside the proposed impact area. The proposed works will not isolate or fragment potential habitat from surrounding areas of habitat.

b. result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or

The proposed works will not result in the establishment of an invasive species that is harmful to the Satin Flycatcher.

c. seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

The proposed works will impact upon a relatively small amount of vegetation including potential foraging habitat for the Satin Flycatcher. Given the relatively

Matters to be addressed	**Impact (Commonwealth Legislation)**
	degraded nature of the site; and the available habitat in the locality and region, the proposed works should not disrupt the lifecycle of the Satin Flycatcher.
(d) does any part of the Proposal involve a Nuclear Action;	No. The project does not include a Nuclear Action.
(e) any environmental impact on a Commonwealth Marine Area;	No. There are no Commonwealth Marine Areas within the study area.
In addition, any direct or indirect effect on Commonwealth land.	No. The project does not directly or indirectly affect Commonwealth land.

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Ben Hendrix
Mecone
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Sydney NSW 2000

20 April 2011

Dear Ben,

RE: Addendum to Ecological Assessment for Stage 1 of 799 Richmond Road

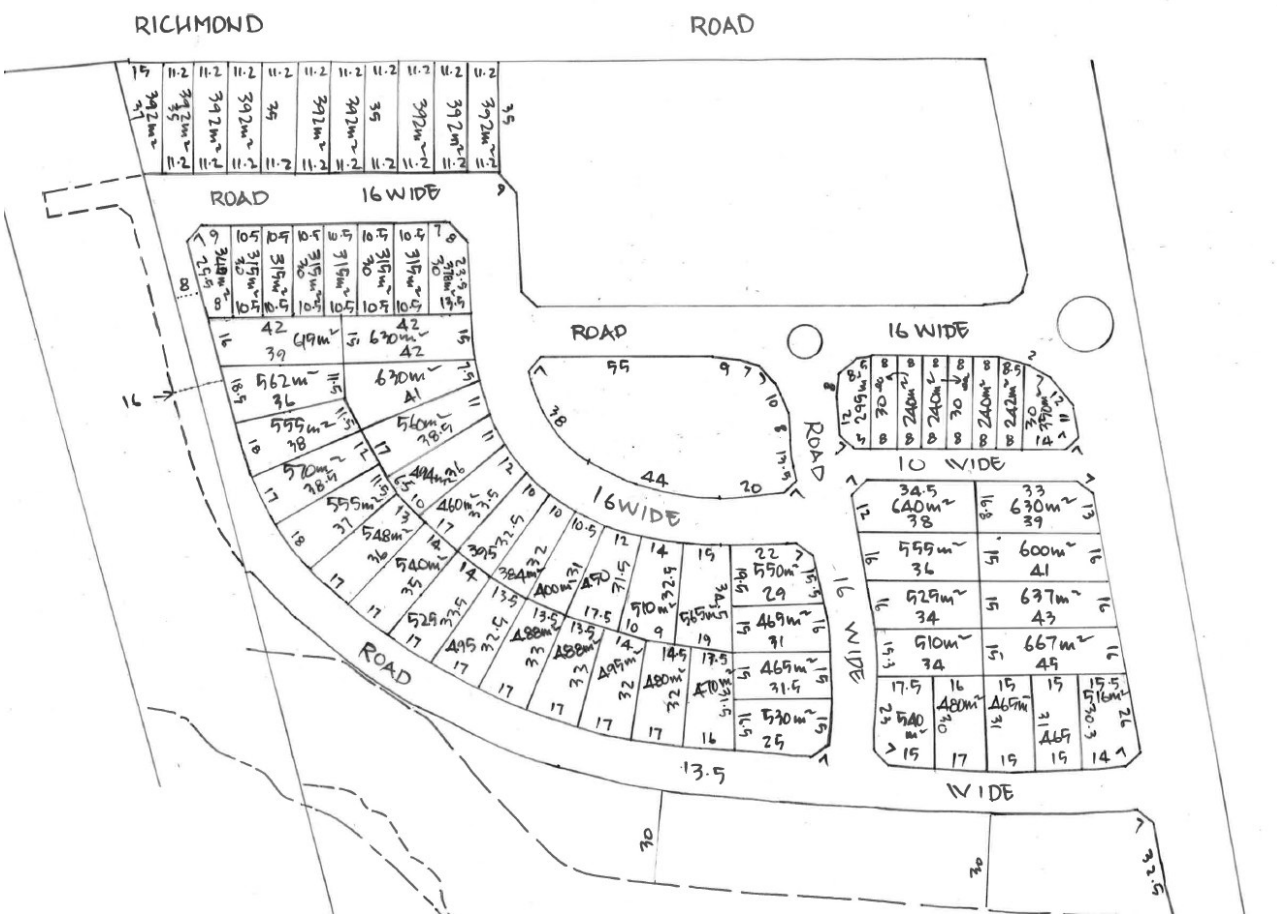
I have reviewed the modified lot layout and approach to riparian corridors in relation to our initial ecological assessment. I can confirm that the impacts from this proposal are consistent with what was identified in our initial ecological assessment.

The minor changes in lot layout do not alter the findings of our existing report and do not warrant further assessment.

Should you require any further information, please contact me on 0405 125 701.

Yours sincerely,

Steven House
Director


RICHMOND
ROAD
ROAD
16 WIDE
ROAD
16 WIDE
ROAD
16 WIDE
16 WIDE
ROAD
13.5
WIDE

Appendix 4 – Traffic and Parking Assessment

MECONE

799 RICHMOND ROAD, MARSDEN PARK
PROPOSED MIXED USE DEVELOPMENT IN STAGE 1 OF THE "SMITH" LAND COMPONENT OF THE COLEBEE RELEASE

TRAFFIC AND PARKING ASSESSMENT

19 May 2011

Ref: 09053/1

Prepared by

John Coady Consulting Pty Ltd
Townplanning and Traffic Consultants

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LIST OF ILLUSTRATIONS

FIGURE 1 LOCATION
FIGURE 2 SITE

1. Introduction

This report has been prepared as part of an application for a zoning amendment to permit a mixed-use development on one of the superlots in Stage 1 of the "Smith" land component of the Colebee Release (Figures 1 and 2).

The superlot which is the subject of this rezoning application is located at the western end of the "Smith" land adjacent to the intersection of Richmond Road with the main *collector* road which passes through the "Smith" land. The site has an area of 12696m^2 and has frontages to Richmond Road, the main *collector* road described in the foregoing, and two of the *local* roads which form part of the Stage 1 development of the "Smith" land. Consistent with established traffic planning practice, no access for the mixed use development is proposed off either Richmond Road or the *collector* road serving the "Smith" land.

The proposed mixed-use development comprises:

- a supermarket with a floorarea of approximately 1500m^2
- speciality shops with a combined floorarea of approximately 1485m^2
- commercial floorspace on the first floor level occupying an area of 1165m^2
- a total off-street parking provision of 152 spaces with vehicular access via a roundabout controlled intersection with the north-south *local* road which forms the eastern site boundary
- three loading facilities comprising:
    - a loading dock at the rear of the supermarket building with capacity to accommodate 2 trucks, 1 x articulated vehicle 16.9m long and 1 x large rigid vehicle 12.5m long
    - a "parallel park" loading zone at the rear of some of the speciality shops located centrally in the proposed development. The loading zone, which is

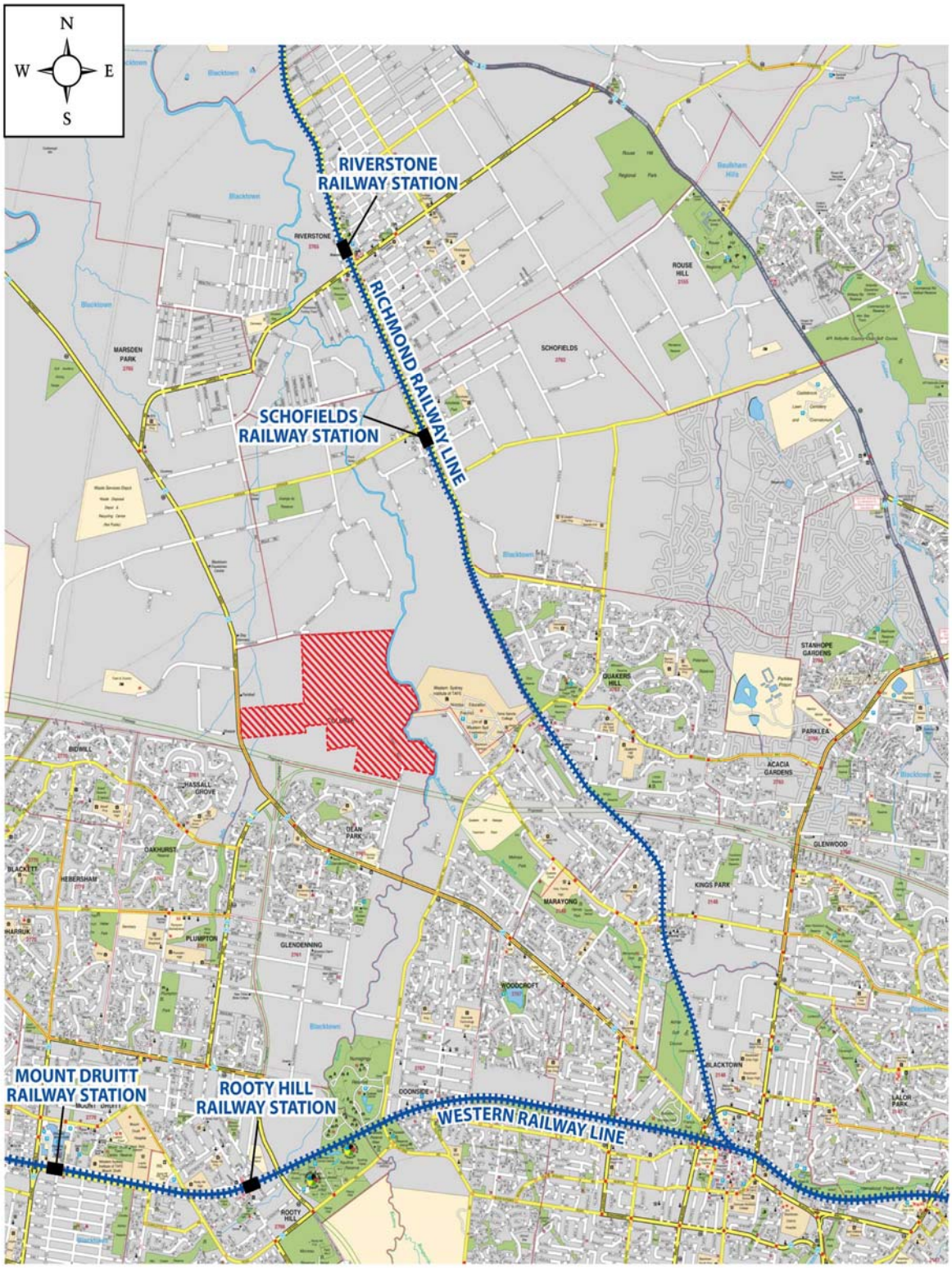
approximately 25m long, can accommodate 3-4 parked commercial vehicles depending on their size

- a “speciality shops” loading dock approximately 14m long located at the rear of the speciality shops at the northern end of the site which can accommodate a large rigid vehicle 12.5m long.

Vehicular access for these loading facilities is via an entrance driveway off the local road system at the southern end of the site, while vehicles departing the loading facilities will use the exit driveway which serves the carpark providing egress to the *local* road which forms the eastern boundary of the site.

Plans of the proposed mixed-use development prepared by D + R Architects are reproduced in the following pages.

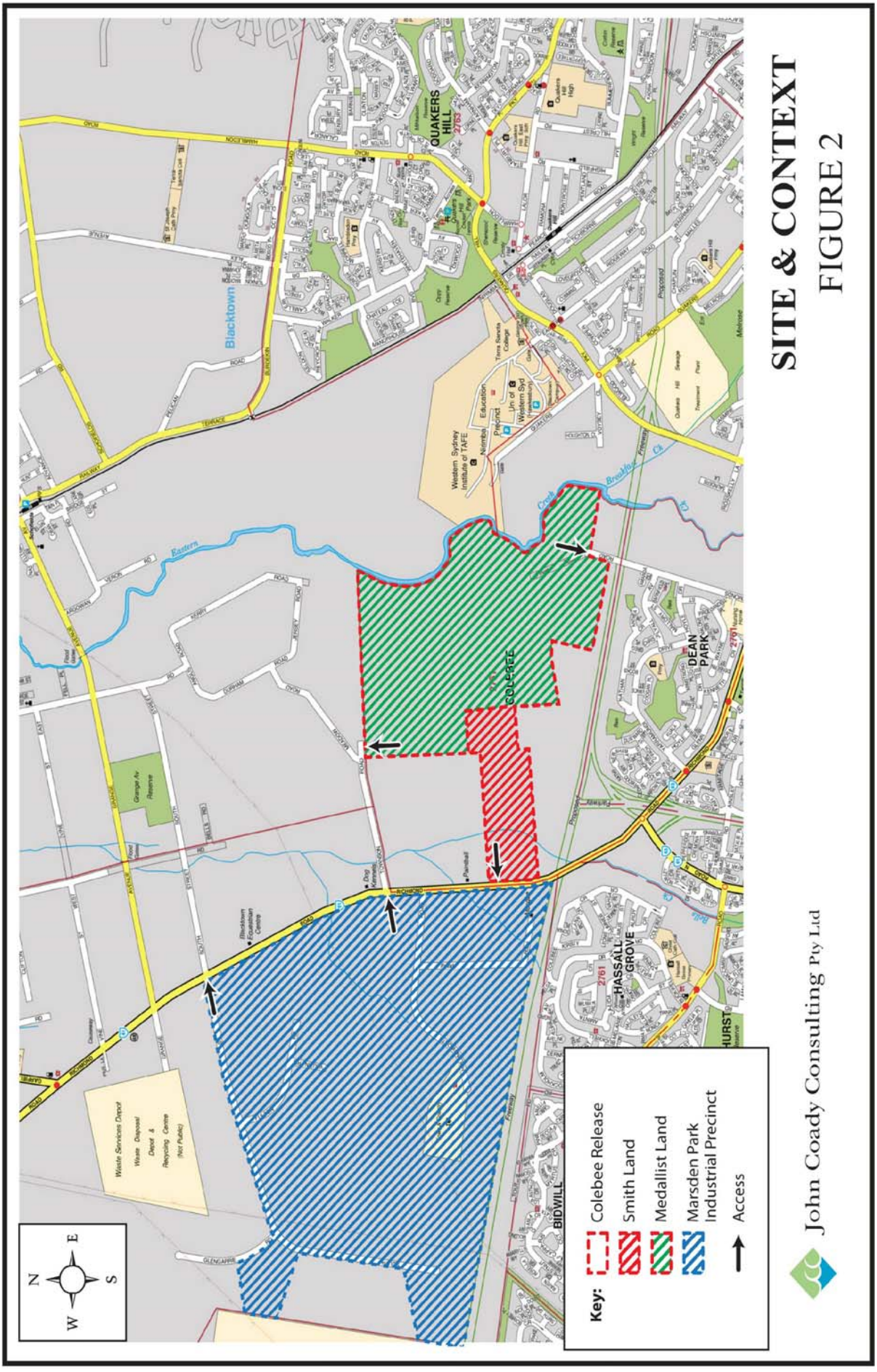
The purpose of this report is to assess the traffic and parking implications of the proposed mixed-use development.



Key: Colebee Release

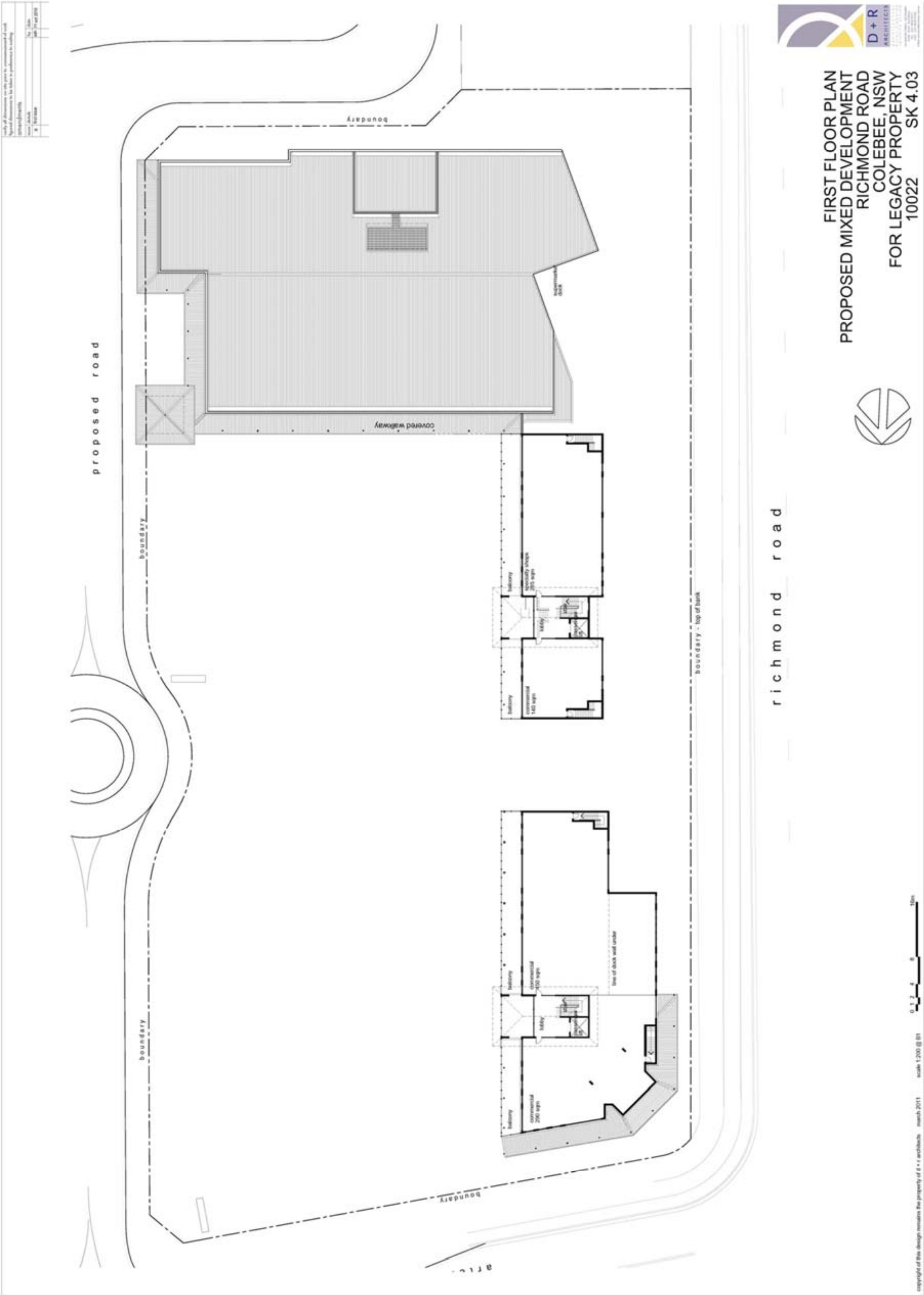
John Coady Consulting Pty Ltd

LOCATION
FIGURE 1


SITE & CONTEXT
FIGURE 2
John Coady Consulting Pty Ltd
Key:
Colebee Release
Smith Land
Medallist Land
Marsden Park Industrial Precinct
Access
N
E
S
W
Blacktown
QUAKERS HILL
COLEBEE
DEAN PARK
HASSALL GROVE
BIDWILL
Western Sydney Institute of TAFE
Terra Sancta College
Eastern Creek
Breakfast Creek
Waste Services Depot
Waste Disposal Depot & Recycling Centre (Not Public)
Blacktown Equestrian Centre
Paintball
Dog Kennels
Grange Av Reserve
Quakers Hill High
Quakers Hill Sewage Treatment Plant
Proposed
Future
Education Precinct
Uni of Western Syd
Nirimba
Freeway
Railway
Road
Creek


SITE PLAN
PROPOSED MIXED DEVELOPMENT
RICHMOND ROAD
COLEBEE, NSW
FOR LEGACY PROPERTY
10022 SK 4.01
richmond road
proposed road


GROUND FLOOR PLAN
PROPOSED MIXED DEVELOPMENT
RICHMOND ROAD
COLEBEE, NSW
FOR LEGACY PROPERTY
10022 SK 4.02
richmond road
proposed road
proposed road
arterial road
truck mountable roundabout
vehicular entry/exit
supermarket service vehicle entry
D + R


FIRST FLOOR PLAN
PROPOSED MIXED DEVELOPMENT
RICHMOND ROAD
COLEBEE, NSW
FOR LEGACY PROPERTY
10022
SK 4.03
D + R
richmond road
proposed road
boundary
boundary - top of bank
covered walkway

2. Parking

Blacktown Development Control Plan 2006 specifies the following off-street parking requirements that are relevant to the proposed development:

Supermarket and vegetable/fruit market	Shops 200m^2 or greater	1space per 22m^2 GFA
Retail shop/showroom	Shops less than 200m^2	1 space per 30m^2 GFA
Commercial/Office Premises		1 spacer per 40m^2 GFA

Application of those requirements to the individual components of the proposed missed-use development yields a total requirement for 149 spaces calculated as follows:

Supermarket	1500m^2 @ 1 space : 22m^2	68.2 spaces
Speciality Shops	1485m^2 @ 1 space : 30m^2	49.5 spaces
Commercial	1165m^2 @ 1 space : 40m^2	29.1 spaces
Total		**147 spaces**

The proposed provision of 152 off-street parking spaces to serve the mixed-use development therefore satisfies the requirement calculated in accordance with *Blacktown DCP 2006*. In the circumstances, it can be concluded that the proposed mixed-use development has no unacceptable parking implications.

3. Service Vehicles

As noted in the foregoing, the proposed development is served by 3 loading facilities comprising:

- a loading dock at the rear of the supermarket building with capacity to accommodate 2 trucks, 1 x Articulated Vehicle 16.9m long and 1 x Large Rigid Vehicle 12.5m long

- a "parallel park" loading zone at the rear of some of the speciality shops located centrally in the proposed development. The loading zone, which is approximately 25m long, can accommodate 3-4 parked commercial vehicles depending on their size

- a "speciality shops" loading dock approximately 14m long located at the rear of the speciality shops at the northern end of the site which can accommodate a Large Rigid Vehicle 12.5m long.

Vehicular access for these loading facilities is via an entrance driveway off the local road system at the southern end of the site, while vehicles departing the loading facilities will use the exit driveway which serves the carpark providing egress to the *local* road which forms the eastern boundary of the site.

The ability of service vehicles to access these loading facilities has been assessed using a computer simulation program called AutoTrack Version 8.90a. This program has been specifically created for the simulation of vehicle turning manoeuvres and ground clearance evaluation. AutoTrack is developed by Savoy Computing Services Ltd of the United Kingdom and is used widely around the world.

The turning paths provided by AutoTrack are reproduced on a copy of the Site Plan which is included as Appendix A[1] revealing that a 16.9m long articulated truck can satisfactorily access the site via the driveway off the local road at the southern end of the site, circulate throughout the site (including accessing the "supermarket" loading dock with a 12.5m rigid truck also in the loading dock), and then depart the site via the roundabout controlled egress to the local road which runs along the eastern boundary of the site. Truck access to/from the

[1] *A large scale copy of this plan was provided to Dianne Rees of the RTA on 7th April 2011.*

parallel park loading bays is relatively straight forward as is truck access to/from the “speciality shops” loading dock.

In the circumstances it can be concluded that the proposed development has no unacceptable implications for service vehicles.

4. Traffic

Projected Traffic Generation Potential

A guide to the traffic generation potential of the proposed mixed-use development is provided by the typical weekday peak period traffic generation rates specified by the RTA Guidelines[2], as follows:

Supermarket	13.8 vtph per 100m^2
Speciality Shops	5.6 vtph per 100m^2
Commercial/Office	2 vtph per 100m^2

The typical weekday peak period traffic generation rates for the supermarket and speciality shop component of the proposed mixed-use development are derived from the formulae in the RTA Guidelines for the weekday peak period traffic generation potential of those components of large shopping centre developments. In this regard, it should be recognised that the traffic generation rate indicated for supermarkets by the RTA equation is derived from surveys of larger supermarkets than that included in the proposed mixed-use development, and generally from surveys of supermarket located within large shopping centres. In this respect, that rate is likely to significantly overstate the actual traffic generation potential of the smaller supermarket included in the mixed-use development proposal. It will also be readily appreciated that the traffic generation potential of the supermarket and speciality shops during the AM peak period will be significantly less than the typical traffic generation rates indicated by the formulae contained in the RTA Guidelines which reflects the traffic generation potential during the PM peak period. For the purposes of this assessment, the traffic generation potential of the supermarket and speciality shops incorporated in the proposed mixed-use has been assumed to be:

	AM Peak	PM Peak
Supermarket	5 vtph per 100m^2	10 vtph per 100m^2
Speciality Shops	3 vtph per 100m^2	5.6 vtph per 100m^2

The traffic generation potential of the individual components of the proposed mixed-use development based on those typical traffic generation rates is:

[2] *RTA "Guide to Traffic Generating Developments. Section 3 - Landuse Traffic Generation" October 2002*

Projected Traffic Generation Potential		
	AM Peak Period	
Supermarket	1500m2 @ 5/100m^2 = 75 vtph	1500m2 @ 10/100m^2 = 150 vtph
Speciality Shops	1485m2 @ 3/100m^2 = 45 vtph	1485m2 @ 5.6/100m^2 = 85 vtph
Commercial Floorspace	1165m2 @ 2/100m2 = 25 vtph	1165m2 @ 2/100m2 = 25 vtph
TOTAL	145 vtph	260vtph

As can be observed, the simple sum of the traffic generation potential of the individual components of the redevelopment proposal is 145 vtph during the AM peak period and 260 vtph during the PM peak period. However, that simple sum of the traffic generation potential of the individual components overstates the traffic generation potential of the redevelopment proposal because, as a mixed-use development, the overall traffic generation potential of the redevelopment proposal will be reduced as a consequence of *dual* trips generated by the individual components of the development.

Dual trips occur when patrons of one component of the proposed development also patronise another. In this case, patrons of the supermarket are also likely to patronise the speciality shops, while the office workforce can be expected to patronise both the supermarket and the speciality shops. Notwithstanding, no allowance has been made in this assessment for the reduced traffic generation potential of the proposed mixed-use development as a consequence of *dual* trips and the simple sum of the traffic generation potential of the individual components of the mixed-use development has been adopted as its traffic generation potential.

For the purposes of this assessment, it has been assumed that the traffic generation potential of the supermarket and speciality shops will be evenly distributed between vehicle arrivals and departures during both the AM and PM peak periods, while 80% of the traffic generation potential of the office floorspace will approach the site during the AM peak period and depart the site during the PM peak period, with 20% departing the site during the AM peak period and approaching the site during the PM peak period.

The traffic generation potential of the proposed mixed-use development during the AM and PM peak period is therefore:

AM Peak Period			**PM Peak Period**		
Total	**In**	**Out**	**Total**	**In**	**Out**
145	80	65	265	125	140

Traffic Implications of the Proposed Mixed-Use Development

The traffic implications of the proposed mixed-use development are assessed in the following in the context of the *Traffic and Transport Assessment Report*[3] prepared as part of the development application submission for Stage 1 of the "Smith" land component of the Colebee Release. The traffic assessment, which is set out in Chapter 6 of that report, addressed the traffic implications of the whole of the Colebee Release, including both the "Medallist" and "Smith" land components of the proposed development, but excluded the traffic generation potential of the proposed mixed-use development which is the subject of this report. The traffic modelling conducted as part of the preparation of the 29 July 2010 report was undertaken by Road Delay Solutions as follows:

- base line vehicle movements were exported from the Revised Year 2036 Strategic Netanal Model undertaken for the Marsden Park Masterplan Project in June 2009

- the traffic generation potential of the Colebee Release was incorporated in the Netanal Model

- the vehicle trip distribution was based on the Department of Planning TPDC 2031 distribution pattern, modified to take into account the Marsden Park industrial precinct.

Road Delay Solutions has conducted additional traffic modelling to assess the traffic implications of the proposed mixed-use development. For the purposes of that traffic modelling it has been assumed that the proposed mixed-use development will focus on attracting patronage from the Colebee Release, comprising both the "Smith" and "Medallist" land. Notwithstanding, the potential for the proposed mixed-use development to attract some patronage from Richmond Road traffic is acknowledged and the traffic model assumes that up to 10% of the traffic generation potential of the proposed mixed-use development will be drawn from Richmond Road traffic.

Following a request from the RTA, that traffic modelling was repeated using the SIDRA program and the output of that additional traffic modelling for the proposed mixed-use development is reproduced in Appendix B including:

- printouts of the road network traffic models for the 2036 weekday AM and PM peak periods

- a printout of projected 2036 weekday AM and PM peak period traffic demand on the intersections of Richmond Road with the "Smith land" collector road (No. 2619) and Townson Road (No. 1000), and the intersection of the "Smith land" collector road with the local road which provides access to the proposed mixed-use development (No. 1331)

- a printout of the treatment at those intersections and the results of traffic modelling showing the operating performance of the two Smith land intersections under projected post-development traffic demand during the weekday AM and PM peak periods.

As can be observed, both key intersections on the road network serving the proposed mixed-use development, that is Richmond Road/"Smith" land collector road and "Smith" land collector road/local road, operate satisfactorily under projected post-development traffic demand such that it can be concluded that the proposed mixed-use development has no unacceptable traffic implications.

[3] *John Coady Consulting Pty Ltd "Proposed Development of Stage 1 of the "Smith" Land Component of the Colebee Release - Traffic and Transport Assessment" 29 July 2010*

Appendix A

Truck Turning Paths

verify all dimensions on site prior to commencement of work.
figured dimensions to be taken in preference to scaling

amendments

issue	details	by	date
a	first issue	ash	11 oct 2010

calculations:

supermarket 1500 sq.m.
specialty shops 1485 sq.m.
commercial space (first floor) 1165 sq.m.

total area 4140 sq.m.

Carparking:
minimum required by council:

supermarket (1 car/ 22 sq.m. gfa) 68.18 car spaces
specialty shops (1 car/ 30 sq.m. gfa) 49.50 car spaces
commercial (1 car/ 40 sq.m. gfa) 29.12 car spaces
total cars required 147 car spaces

actual provided on site 152 car spaces

TTRAFFIC CONSULTANT'S TRUCK TURNING PATHS
PROPOSED MIXED DEVELOPMENT
RICHMOND ROAD
COLEBEE, NSW
FOR LEGACY PROPERTY
10022 SK 4.01/3

D+R ARCHITECTS

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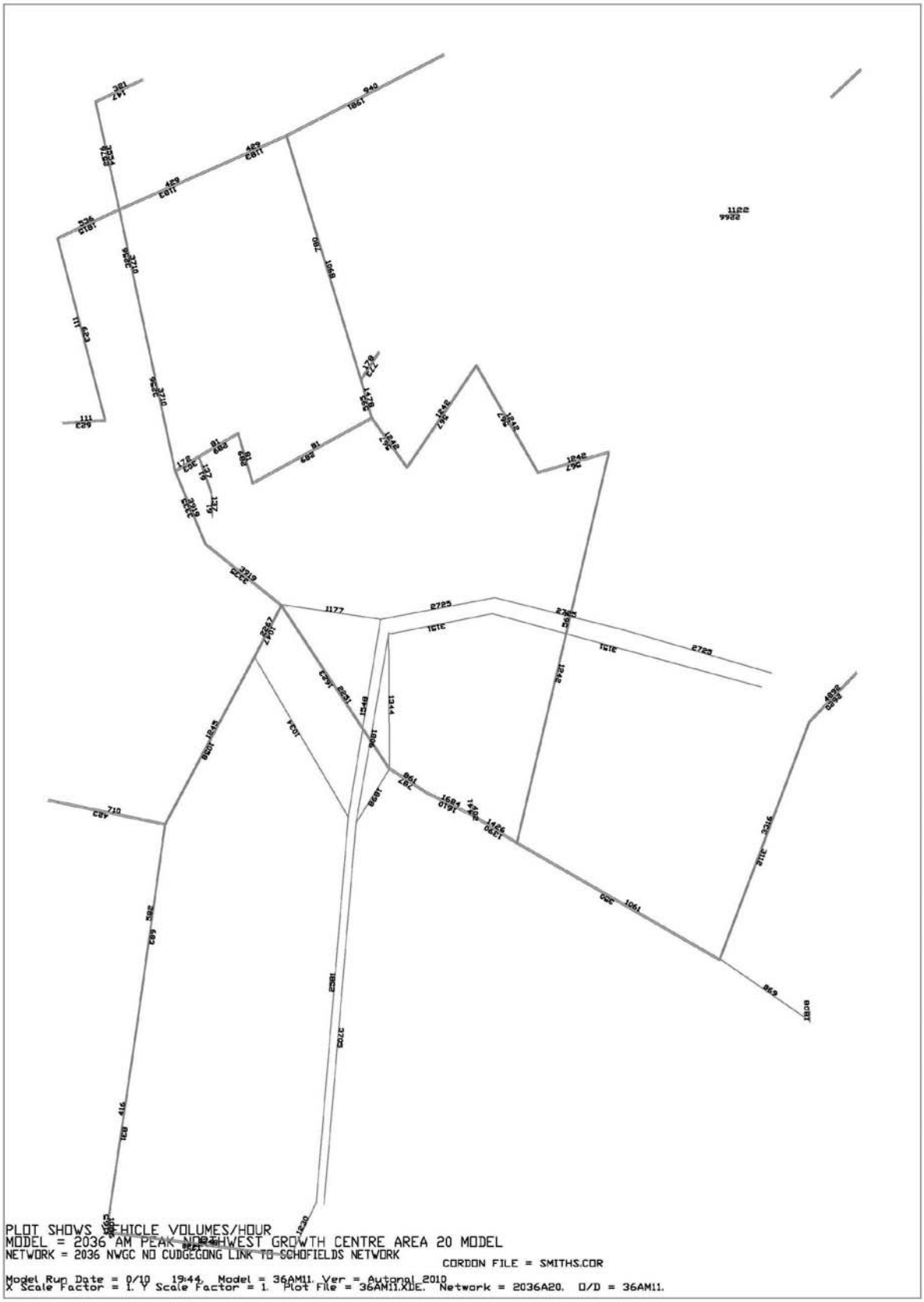
scale 1:500 @ B1

0 1 5 10 20 40m

JOHN COADY CONSULTING PTY LTD

Appendix B

Traffic Modelling Conducted by Road Delay Solutions


PLOT SHOWS VEHICLE VOLUMES/HOUR
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NETWORK = 2036 NWGC NO CUDGEGONG LINK TO SCHOFIELDS NETWORK
CORDON FILE = SMITHS.COR
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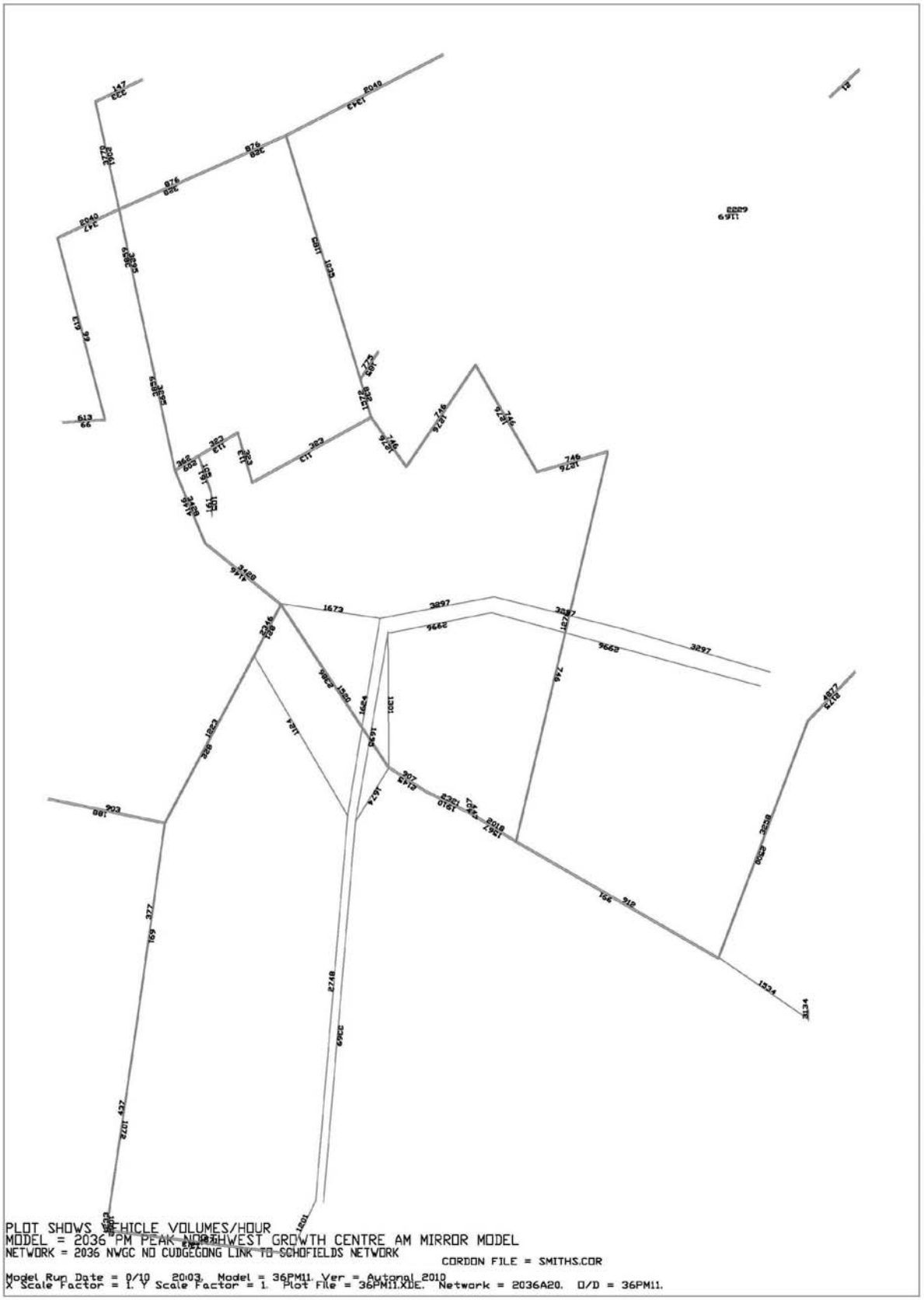
PLOT SHOWS VEHICLE VOLUMES/HOUR
MODEL = 2036 PM PEAK NORTHWEST GROWTH CENTRE AM MIRROR MODEL
NETWORK = 2036 NWGC NO CUDGEGONG LINK TO SCHOFIELDS NETWORK
CORDON FILE = SMITHS.COR
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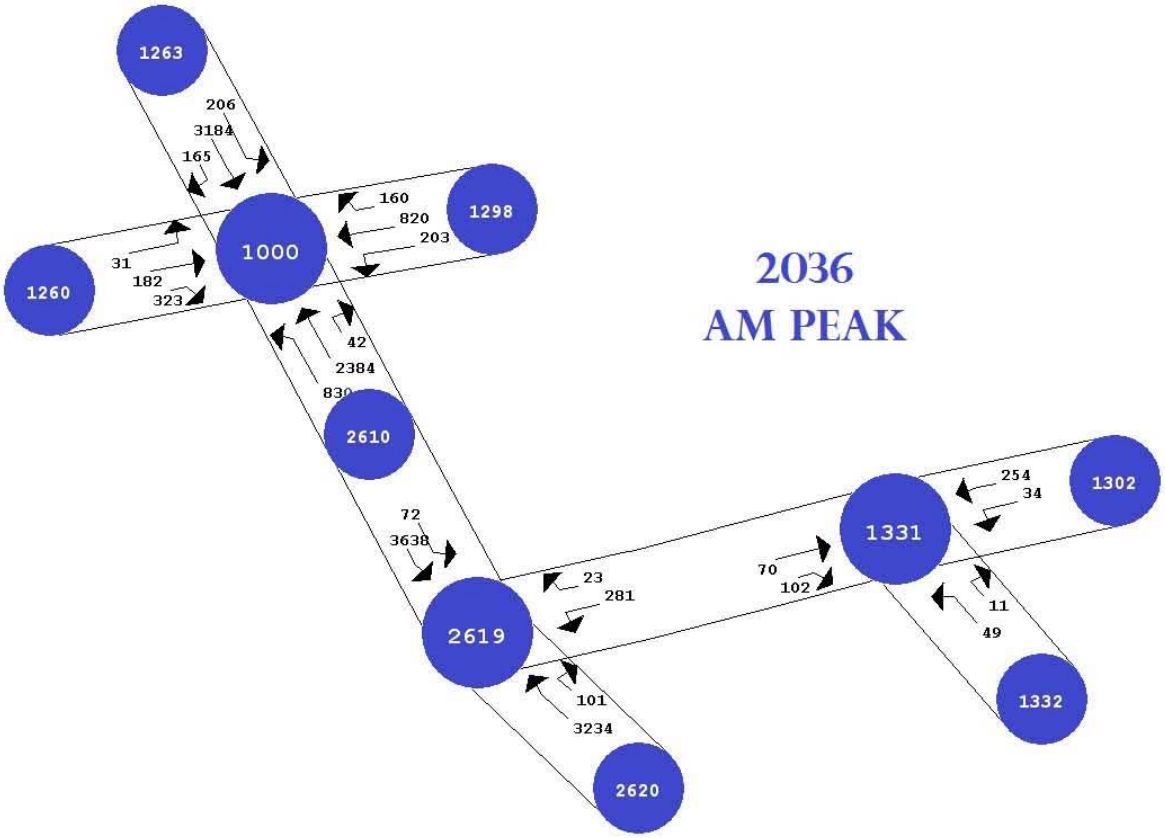
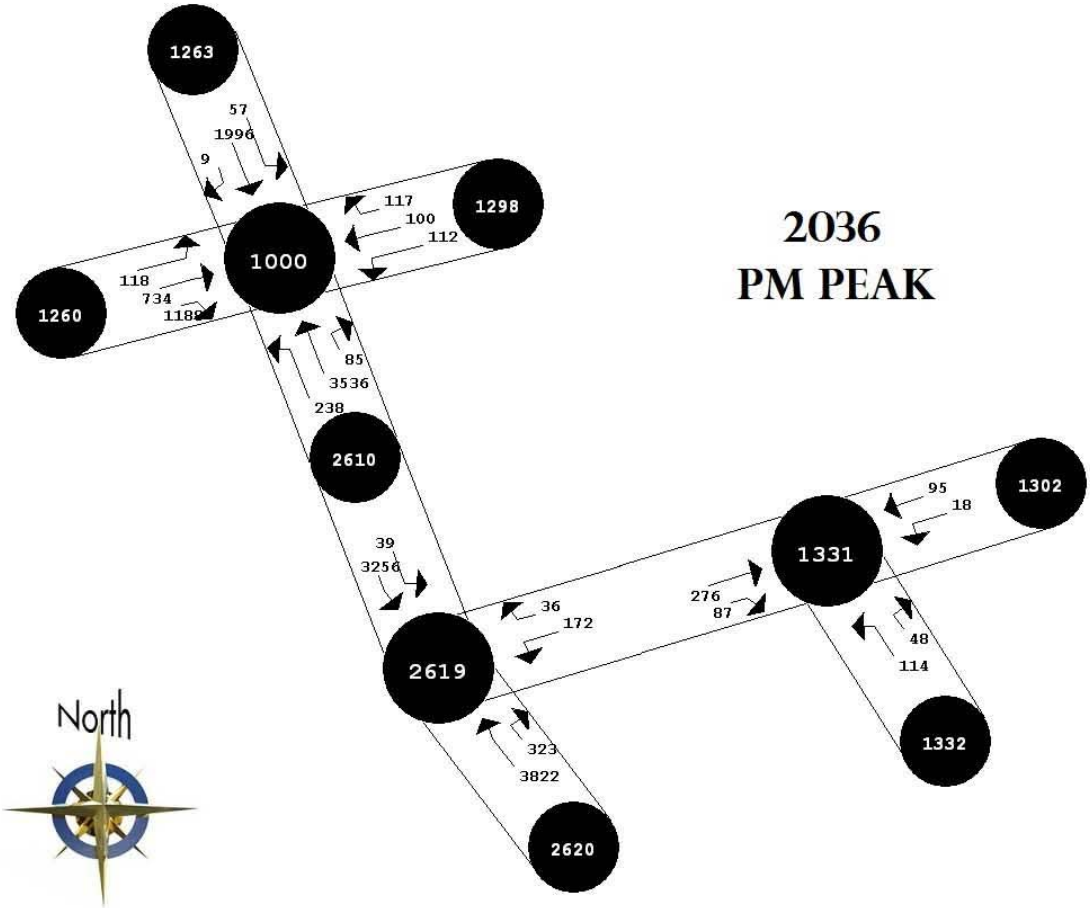


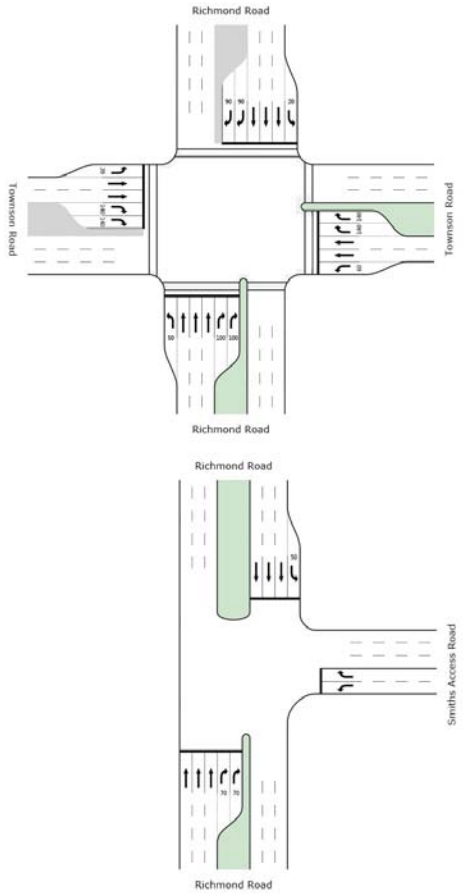
2036
AM PEAK

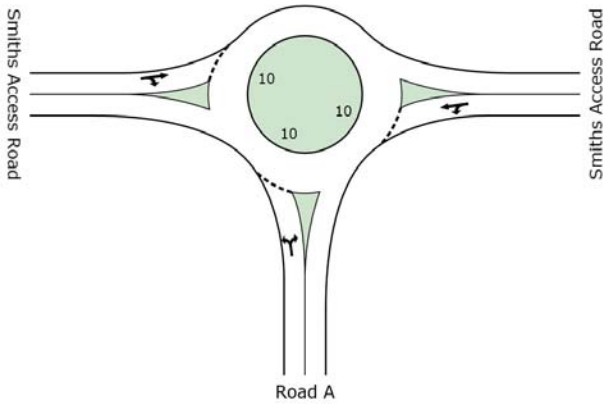


2036
PM PEAK

INTERSECTION PERFORMANCES

799 Richmond Road								
Preferred Intersection Treatments								
			AM			PM		
Int #	**Intersection**	**Control Mode**	**DS**	**AVG** *(sec)*	**LoS**	**DS**	**AVG** *(sec)*	**LoS**
1001	Smiths Access Road and Road A	Roundabout	0.245	5	A	0.276	5	A
2619	Richmond Road and Smiths Access Road	Traffic Signals	0.92	16.8	B	0.886	15.7	B





INTERSECTION SUMMARY

Site: AM

Richmond Road and Smiths Access Road
Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	7736	veh/h	9283	pers/h
Percent Heavy Vehicles	0.0	%		
Degree of Saturation	0.918			
Practical Spare Capacity	-1.9	%		
Effective Intersection Capacity	8430	veh/h		
Control Delay (Total)	37.32	veh-h/h	44.78	pers-h/h
Control Delay (Average)	17.4	sec	17.4	sec
Control Delay (Worst Lane)	96.9	sec		
Control Delay (Worst Movement)	96.9	sec	96.9	sec
Geometric Delay (Average)	0.5	sec		
Stop-Line Delay (Average)	16.8	sec		
Level of Service (Aver. Int. Delay)	LOS B			
Level of Service (Worst Movement)	LOS F			
Level of Service (Worst Lane)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	80.1	veh		
95% Back of Queue - Distance (Worst Lane)	560.6	m		
Total Effective Stops	4888	veh/h	5866	pers/h
Effective Stop Rate	0.63	per veh	0.63	per pers
Proportion Queued	0.66		0.66	
Performance Index	356.8		356.8	
Travel Distance (Total)	4690.7	veh-km/h	5628.9	pers-km/h
Travel Distance (Average)	606	m	606	m
Travel Time (Total)	120.1	veh-h/h	144.1	pers-h/h
Travel Time (Average)	55.9	sec	55.9	sec
Travel Speed	39.1	km/h	39.1	km/h
Cost (Total)	3604.16	$/h	3604.16	$/h
Fuel Consumption (Total)	501.4	L/h		
Carbon Dioxide (Total)	1253.4	kg/h		
Hydrocarbons (Total)	2.089	kg/h		
Carbon Monoxide (Total)	81.48	kg/h		
NOx (Total)	2.729	kg/h		

LOS (Aver. Int. Delay) for Vehicles is based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
LOS Method for individual vehicle movements and lanes: Delay (RTA NSW).

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	3,713,179	veh/y	4,455,815	pers/y
Delay	17,913	veh-h/y	21,496	pers-h/y
Effective Stops	2,346,333	veh/y	2,815,600	pers/y
Travel Distance	2,251,548	veh-km/y	2,701,857	pers-km/y
Travel Time	57,625	veh-h/y	69,149	pers-h/y
Cost	1,729,998	$/y	1,729,998	$/y
Fuel Consumption	240,653	L/y		
Carbon Dioxide	601,632	kg/y		
Hydrocarbons	1,003	kg/y		
Carbon Monoxide	39,112	kg/y		
NOx	1,310	kg/y		

INTERSECTION SUMMARY

Site: AM

Smiths Access Road and Road A
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	547	veh/h	657	pers/h
Percent Heavy Vehicles	0.0	%		
Degree of Saturation	0.245			
Practical Spare Capacity	246.8	%		
Effective Intersection Capacity	2233	veh/h		
Control Delay (Total)	1.25	veh-h/h	1.50	pers-h/h
Control Delay (Average)	8.2	sec	8.2	sec
Control Delay (Worst Lane)	9.5	sec		
Control Delay (Worst Movement)	12.2	sec	12.2	sec
Geometric Delay (Average)	7.7	sec		
Stop-Line Delay (Average)	0.5	sec		
Level of Service (Aver. Int. Delay)	LOS A			
Level of Service (Worst Movement)	LOS A			
Level of Service (Worst Lane)	LOS A			
95% Back of Queue - Vehicles (Worst Lane)	1.7	veh		
95% Back of Queue - Distance (Worst Lane)	12.0	m		
Total Effective Stops	329	veh/h	395	pers/h
Effective Stop Rate	0.60	per veh	0.60	per pers
Proportion Queued	0.24		0.24	
Performance Index	9.6		9.6	
Travel Distance (Total)	332.2	veh-km/h	398.6	pers-km/h
Travel Distance (Average)	607	m	607	m
Travel Time (Total)	6.9	veh-h/h	8.2	pers-h/h
Travel Time (Average)	45.2	sec	45.2	sec
Travel Speed	48.3	km/h	48.3	km/h
Cost (Total)	223.50	$/h	223.50	$/h
Fuel Consumption (Total)	36.2	L/h		
Carbon Dioxide (Total)	90.4	kg/h		
Hydrocarbons (Total)	0.155	kg/h		
Carbon Monoxide (Total)	7.25	kg/h		
NOx (Total)	0.217	kg/h		

LOS (Aver. Int. Delay) for Vehicles is based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
LOS Method for individual vehicle movements and lanes: Delay (RTA NSW).
Roundabout Capacity Model: SIDRA Standard.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	262,737	veh/y	315,284	pers/y
Delay	599	veh-h/y	719	pers-h/y
Effective Stops	157,959	veh/y	189,551	pers/y
Travel Distance	159,446	veh-km/y	191,335	pers-km/y
Travel Time	3,299	veh-h/y	3,959	pers-h/y
Cost	107,280	$/y	107,280	$/y
Fuel Consumption	17,366	L/y		
Carbon Dioxide	43,415	kg/y		
Hydrocarbons	74	kg/y		
Carbon Monoxide	3,481	kg/y		
NOx	104	kg/y		

INTERSECTION SUMMARY

Site: PM

Richmond Road and Smiths Access Road
Signals - Fixed Time Cycle Time = 130 seconds (Practical Cycle Time)

Intersection Performance - Hourly Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	8051	veh/h	9661	pers/h
Percent Heavy Vehicles	0.0	%		
Degree of Saturation	0.886			
Practical Spare Capacity	1.6	%		
Effective Intersection Capacity	9090	veh/h		
Control Delay (Total)	36.43	veh-h/h	43.71	pers-h/h
Control Delay (Average)	16.3	sec	16.3	sec
Control Delay (Worst Lane)	78.1	sec		
Control Delay (Worst Movement)	78.1	sec	78.1	sec
Geometric Delay (Average)	0.6	sec		
Stop-Line Delay (Average)	15.7	sec		
Level of Service (Aver. Int. Delay)	LOS B			
Level of Service (Worst Movement)	LOS F			
Level of Service (Worst Lane)	LOS F			
95% Back of Queue - Vehicles (Worst Lane)	61.4	veh		
95% Back of Queue - Distance (Worst Lane)	429.8	m		
Total Effective Stops	5361	veh/h	6433	pers/h
Effective Stop Rate	0.67	per veh	0.67	per pers
Proportion Queued	0.70		0.70	
Performance Index	349.7		349.7	
Travel Distance (Total)	4882.2	veh-km/h	5858.6	pers-km/h
Travel Distance (Average)	606	m	606	m
Travel Time (Total)	122.7	veh-h/h	147.3	pers-h/h
Travel Time (Average)	54.9	sec	54.9	sec
Travel Speed	39.8	km/h	39.8	km/h
Cost (Total)	3700.87	$/h	3700.87	$/h
Fuel Consumption (Total)	525.2	L/h		
Carbon Dioxide (Total)	1312.9	kg/h		
Hydrocarbons (Total)	2.191	kg/h		
Carbon Monoxide (Total)	87.88	kg/h		
NOx (Total)	2.901	kg/h		

LOS (Aver. Int. Delay) for Vehicles is based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
LOS Method for individual vehicle movements and lanes: Delay (RTA NSW).

Intersection Performance - Annual Values				
Performance Measure	Vehicles		Persons	
Demand Flows (Total)	3,864,253	veh/y	4,637,104	pers/y
Delay	17,484	veh-h/y	20,981	pers-h/y
Effective Stops	2,573,040	veh/y	3,087,649	pers/y
Travel Distance	2,343,449	veh-km/y	2,812,139	pers-km/y
Travel Time	58,918	veh-h/y	70,701	pers-h/y
Cost	1,776,417	$/y	1,776,417	$/y
Fuel Consumption	252,075	L/y		
Carbon Dioxide	630,188	kg/y		
Hydrocarbons	1,052	kg/y		
Carbon Monoxide	42,180	kg/y		
NOx	1,393	kg/y		

INTERSECTION SUMMARY

Site: PM

Smiths Access Road and Road A
Roundabout

Intersection Performance - Hourly Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	672	veh/h	806	pers/h
Percent Heavy Vehicles	0.0	%		
Degree of Saturation	0.276			
Practical Spare Capacity	207.2	%		
Effective Intersection Capacity	2427	veh/h		
Control Delay (Total)	1.51	veh-h/h	1.81	pers-h/h
Control Delay (Average)	8.1	sec	8.1	sec
Control Delay (Worst Lane)	9.0	sec		
Control Delay (Worst Movement)	11.4	sec	11.4	sec
Geometric Delay (Average)	7.7	sec		
Stop-Line Delay (Average)	0.4	sec		
Level of Service (Aver. Int. Delay)	LOS A			
Level of Service (Worst Movement)	LOS A			
Level of Service (Worst Lane)	LOS A			
95% Back of Queue - Vehicles (Worst Lane)	2.1	veh		
95% Back of Queue - Distance (Worst Lane)	14.8	m		
Total Effective Stops	392	veh/h	471	pers/h
Effective Stop Rate	0.58	per veh	0.58	per pers
Proportion Queued	0.23		0.23	
Performance Index	11.7		11.7	
Travel Distance (Total)	407.4	veh-km/h	488.9	pers-km/h
Travel Distance (Average)	607	m	607	m
Travel Time (Total)	8.4	veh-h/h	10.1	pers-h/h
Travel Time (Average)	45.1	sec	45.1	sec
Travel Speed	48.4	km/h	48.4	km/h
Cost (Total)	273.78	$/h	273.78	$/h
Fuel Consumption (Total)	44.4	L/h		
Carbon Dioxide (Total)	110.9	kg/h		
Hydrocarbons (Total)	0.190	kg/h		
Carbon Monoxide (Total)	8.89	kg/h		
NOx (Total)	0.266	kg/h		

LOS (Aver. Int. Delay) for Vehicles is based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
LOS Method for individual vehicle movements and lanes: Delay (RTA NSW).
Roundabout Capacity Model: SIDRA Standard.

Intersection Performance - Annual Values				
Performance Measure	**Vehicles**		**Persons**	
Demand Flows (Total)	322,358	veh/y	386,830	pers/y
Delay	724	veh-h/y	869	pers-h/y
Effective Stops	188,238	veh/y	225,885	pers/y
Travel Distance	195,561	veh-km/y	234,673	pers-km/y
Travel Time	4,040	veh-h/y	4,848	pers-h/y
Cost	131,415	$/y	131,415	$/y
Fuel Consumption	21,290	L/y		
Carbon Dioxide	53,225	kg/y		
Hydrocarbons	91	kg/y		
Carbon Monoxide	4,269	kg/y		
NOx	128	kg/y		

Appendix 5 – Bushfire Assessment

MECONE

Ben Hendrix
Mecone
Suite 804, 185 Elizabeth Street
Sydney NSW 2000

20 April 2011

Dear Ben,

RE: Addendum to Bushfire Protection Assessment for Stage 1 of 799 Richmond Road

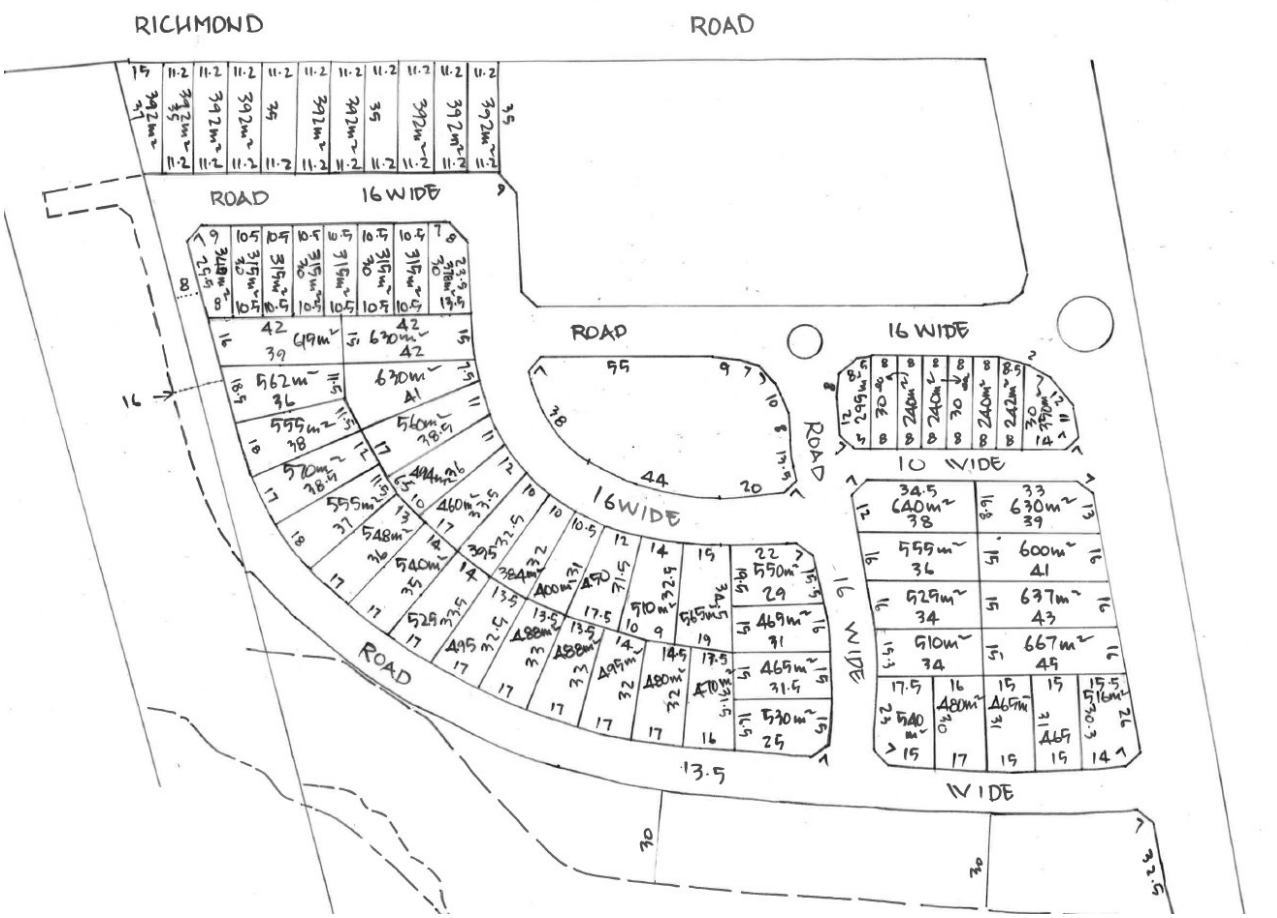
I have reviewed the modified lot layout and approach to riparian corridors in relation to our initial bushfire assessment prepared for the development. The changes of the lot layout are relatively minor and do not require any additional bushfire mitigation measures to be implemented.

I can confirm that the hazard assessment for the site is unchanged and the proposed lot layout provided on the following page will meet asset protection zones, road widths and water supply requirements. Future construction of buildings will be able to meet the requirements of AS3959-2009 Construction of Buildings in Bushfire Prone Areas.

Should you require any further information, please contact me on 0405 125 701.

Yours sincerely,

Steven House
Director

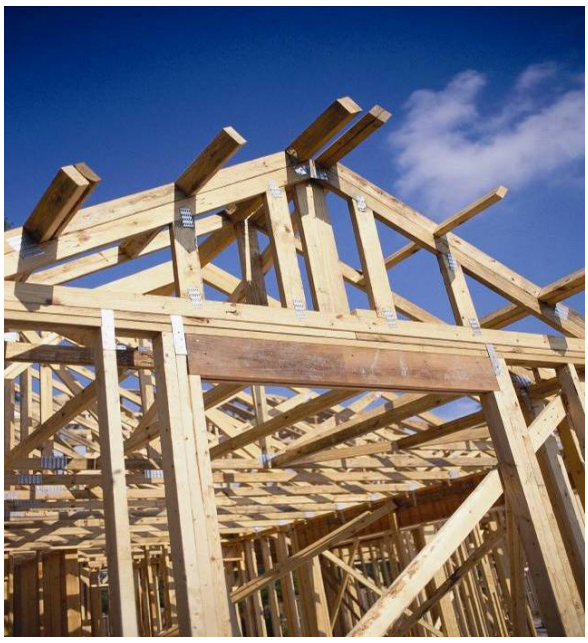

RICHMOND
ROAD
ROAD
16 WIDE
ROAD
16 WIDE
ROAD
16 WIDE
16 WIDE
ROAD
13.5
WIDE

BUSHFIRE PROTECTION ASSESSMENT

777-799 Richmond Road, Marsden Park - Proposed Residential/Commercial Development

Prepared for
Legacy Property

July 2010



Bushfire Protection Assessment

Proposed Residential/Commercial Development:

777-799 Richmond Road, Marsden Park

PREPARED FOR	**Legacy Property**
PROJECT NO	**10SGBBUS-0005**
DATE	**July 2010**

DOCUMENT TRACKING

ITEM	DETAIL
Project Name	Bushfire Protection Assessment, Proposed Residential/Commercial Development, 777-799 Richmond Road, Marsden Park
Project Number	10SGBBUS-0005
File location	T:\Projects\10SGBBUS\10SGBBUS-0005 Colebee, Richmond Road - Master Planning\Report\Final Reports\10SGBBUS-0005 Bushfire Constraints Advice, 777-799 Richmond Rd, Colebee.doc
Prepared by	Susan Courtney/Steven House
Reviewed by	Kate Kline
Approved by	 Steven House
Status	FINAL
Version Number	1
Last saved on	28 July 2010

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Legacy Property.

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1 Property and proposal

Name:	Legacy Property		
Postal address:	Level 6, 20 Loftus Street, Circular Quay NSW 2000		
Street or property Name:	777-799 Richmond Road		
Suburb, town or locality:	Marsden Park	**Postcode:**	2761
Lot/DP no:	Lot 1 DP 840786, Lot 26 DP 66196, Lot 9 DP 976148, Lot 1 DP 752030 and Lot 1 DP 397350		
Local Government Area:	Blacktown City Council		
Type of area:	Urban		
Type of development:	Residential/commercial – Subdivision		

1.1 DESCRIPTION OF PROPOSAL

Legacy Property commissioned Eco Logical Australia Pty Ltd (ELA) to prepare a bushfire protection assessment for the future residential/commercial development of 777-799 Richmond Road, Marsden Park (hereafter referred to as the subject land). The proposal includes:

1. Residential and commercial subdivision on the western side of Bells Creek
2. Construction of the main connector road across the entire site
3. Subdivision of the land to the east of Bells Creek into two (2) superlots (lots will be located to the north and south of the connector road)

1.2 LOCATION AND DESCRIPTION OF SUBJECT LAND

The subject land is located on the eastern side of Richmond Road in Marsden Park in north-western Sydney as shown in Figure 1. The nearest bush fire prone vegetation consists of Cumberland Plain Woodland adjacent the subject land to the north and the south as shown in Figure 2.

The main drainage line through the site, Bells Creek currently does not have sufficient vegetation to be classified as bushfire prone. However future revegetation of this area will establish a woodland structure adjacent to the creek. Bioretention and water detention areas will be located on the roadside of the riparian and corridor and will also be revegetated with native species.

Figure 1: Aerial photograph showing subject land

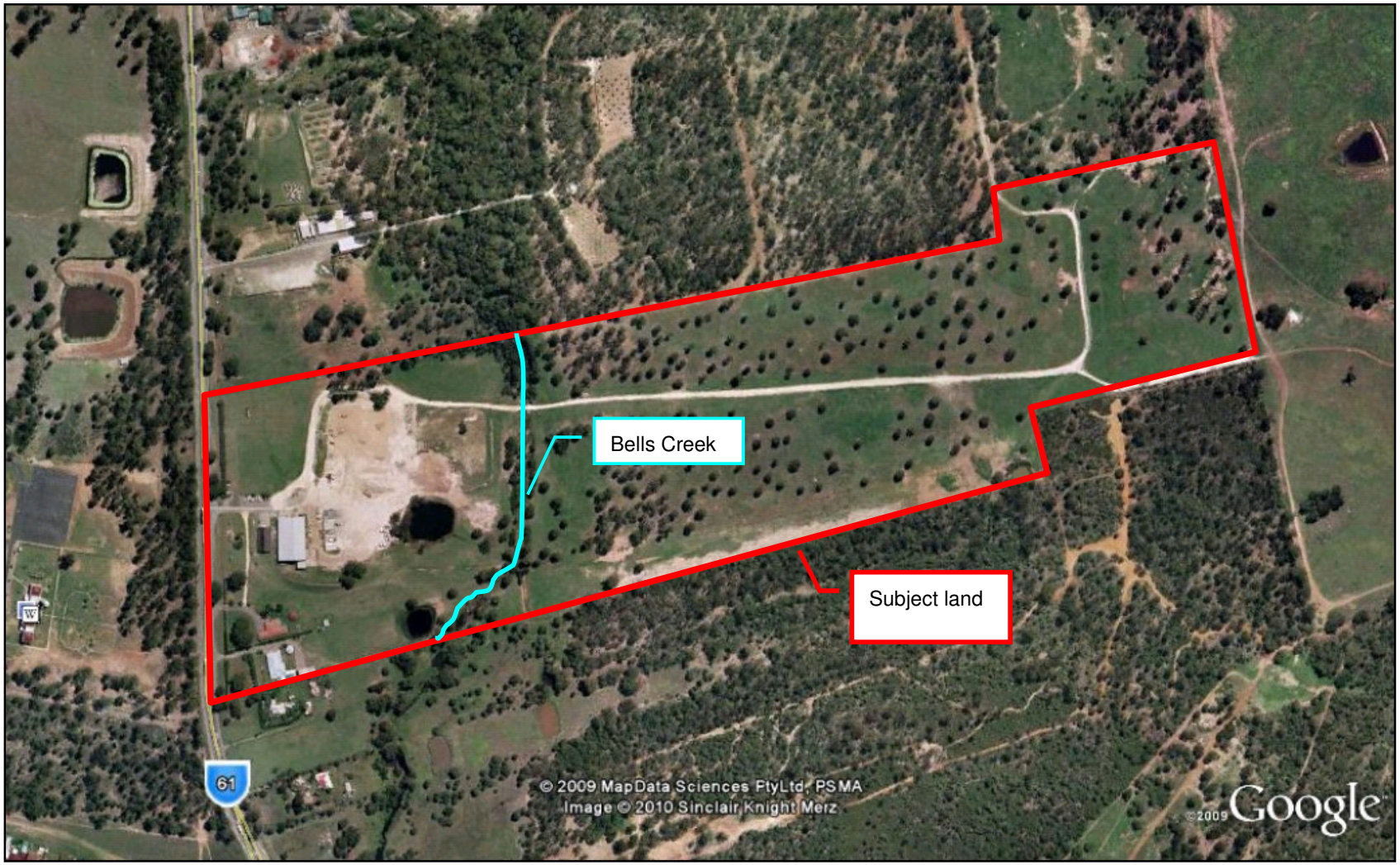

Figure 2: Aerial photograph showing subject land and surrounding vegetation

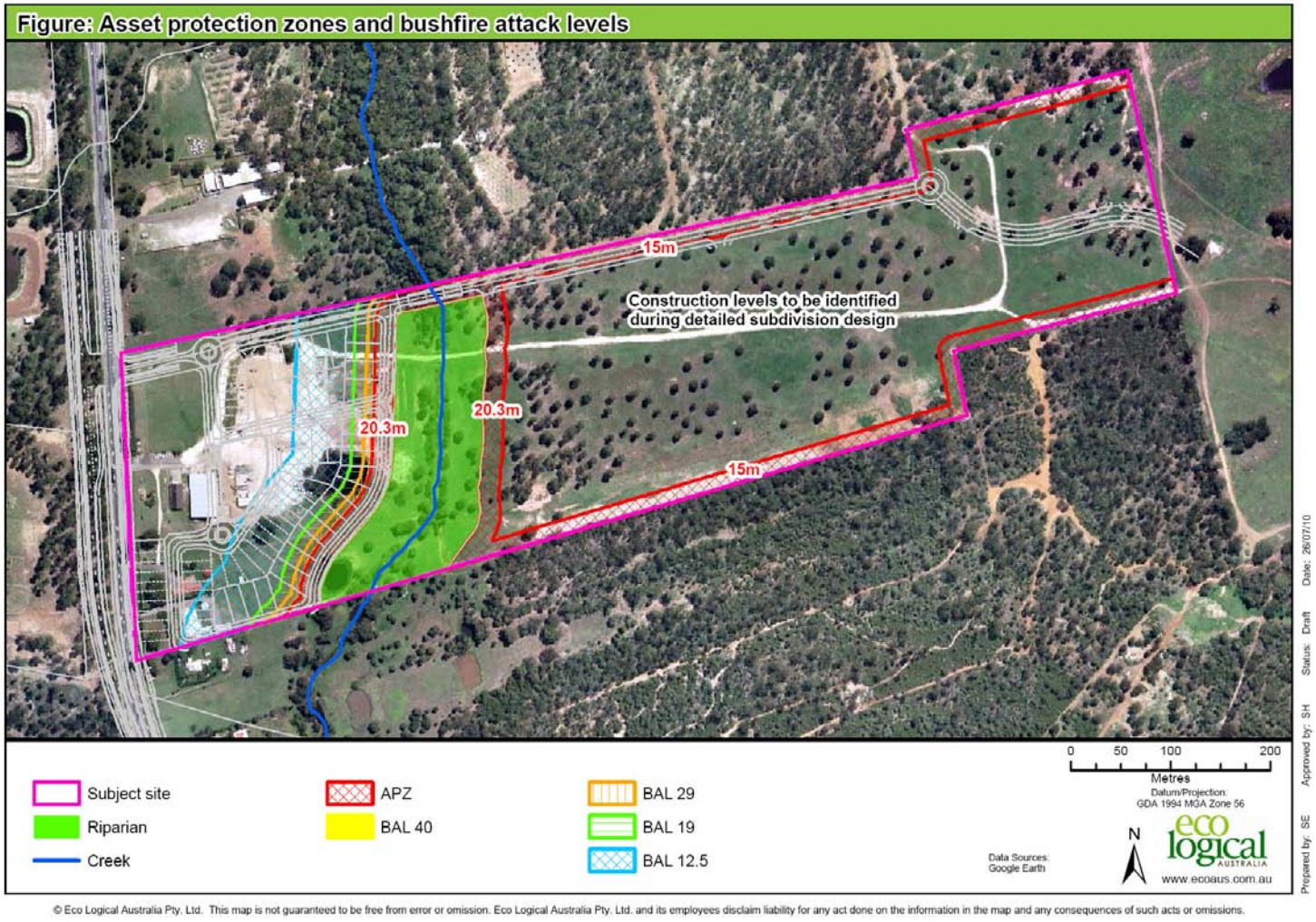

Figure 3: Asset Protection Zones and Bushfire Construction Levels

2 Site Data

The subject land is identified as Bush Fire Prone Land by Blacktown City Council. The following constraints advice has been prepared in accordance with Section 100B of the *Rural Fires Act 1997*, Clause 44 of the *Rural Fires Regulation 2008*, and 'Planning for Bushfire Protection 2006' (RFS 2006) herein referred to as PBP.

2.1 VEGETATION TYPES AND SLOPES

The vegetation and slope have been assessed in all directions both within and adjacent the subject land. In accordance with PBP the predominant vegetation class has been calculated within the subject land and for a distance of at least 140 m out from the boundary of the subject land, and the slope class *"most significantly affecting fire behaviour having regard for vegetation found [on it]"* determined for a distance of at least 100 m in all directions.

The majority of vegetation within 140 m of the subject land is either managed grasslands or fully structured/regenerating Shale Gravel Transition Forest (SGTF) as shown in Figure 3. This vegetation community is listed as an Endangered Ecological Community under the NSW *Threatened Species Conservation Act* 1995 and the *Commonwealth Environmental Protection and Biodiversity Conservation Act* 1999 and is classified by PBP as 'grassy woodland'.

The SGTF has a variety of Eucalypt species in its canopy, and a generally sparse understorey consisting of shrubs (e.g. Blackthorn) and grasses (e.g. Kangaroo Grass). Some of the SGTF to the south of the subject land has a denser understorey that is associated with regrowth from some past disturbance and/or small areas of poor drainage. The fuel loads of SGTF in the study area are typically low to moderate even when left unmanaged.

The land to the east of the subject land is currently being developed as a golf course with surrounding residential development and consequently will continue to be managed in the future. BES (now forming part of Eco Logical Australia) prepared the bushfire assessments for rezoning the land to the east and subsequent staged development applications. The categorisation of the vegetation is consistent with those previous reports.

Richmond Road adjoins the subject land to the west and across this road way, there is a narrow band of Cumberland Plain Woodland within the road reserve and within the grounds of the adjacent Baital Huda Mosque.

There is a creek known as Bells Creek running through the front half of the subject land in a north west direction. This waterway contains some degraded riparian vegetation and development of the subject land will require some revegetation/regeneration along this waterway. This will occur to a width of 40 metres from the top of each bank. Structurally and floristically the revegetation will take the form of Alluvial Woodland.

3 Asset Protection Zones (APZs)

Figure 4 shows the APZs that will be required for future residential and commercial development adjacent the vegetation surrounding and revegetation that will be contained within the subject land. The subject land is capable of accommodating the required APZs as outlined in Table 1 below.

Table 1: Threat assessment, APZ and category of bushfire attack

Location	Slope[1]	Vegetation[2]	PBP required APZ[3]	Comment
North	>0-5° downslope	Woodland (grassy)	Residential – 15 m	APZ to be contained within the subject land; residential APZ could potentially be located within a perimeter road reserve. Adjacent bushfire hazard is 'biodiversity certified' under Growth Centres SEPP and likely to be cleared for future residential development.
South	>0-5° downslope	Woodland (grassy)	Residential – 15 m	The hazard is generally cross slope to the development. The APZ is to be contained within the subject land, subject to future development of the superlot. It is likely the APZ will be located within a perimeter road.
Bells Creek	>0-5° downslope	Woodland (grassy)	Residential – 15 m	An APZ of 20.3m width is provided by the perimeter road easement and front yard setbacks.

[1] Slope most significantly influencing the fire behaviour of the site having regard to vegetation found. Slope classes are according to PBP.

[2] Predominant vegetation is identified, according to PBP and *"Where a mix of vegetation types exist the type providing the greater hazard is said to be predominate".*

[3] Assessment according to PBP.

[4] Assessment according to PBP.

4 Construction standards

The category of bushfire attack and required building construction standard level as per Australian Standard AS 3959-2009 'Construction of buildings in bushfire-prone areas' for future buildings within the subject land is shown in figure 3.

While AS 3959-2009 does not apply as a set of deemed-to-satisfy provisions for commercial development, certain elements of this standard will be applied to commercial development on a case specific basis depending on the nature of the construction.

5 Water supply

The subject land will be serviced by reticulated water. The furthest point from any future dwellings to a hydrant is to be less than 90 m. The reticulated water supply is to comply with the following acceptable solutions within Section 4.1.3 of PBP:

- Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads;
- Fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005. Where this cannot be met, the RFS will require a test report of the water pressures anticipated by the relevant water supply authority. In such cases, the location, number and sizing of hydrants shall be determined using fire engineering principles;
- Hydrants are not located within any road carriageway;
- All above ground water and gas service pipes external to the building are metal, including and up to any taps; and
- The [PBP] provisions of parking on public roads are met (Standards Australia 2005).

6 Gas and electrical supplies

In accordance with PBP, electricity should be underground wherever practicable. Where overhead electrical transmission lines are installed:

- lines are to be installed with short pole spacing, unless crossing gullies, and

- no part of a tree should be closer to a powerline than the distance specified in "Vegetation Safety Clearances" issued by Energy Australia (NS179 April 2002).

Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2008 (Standards Australia 2008).

7 Access

7.1 CAPABILITY OF PUBLIC ROADS

The RTA is currently planning a major upgrade of Richmond Road to a dual carriageway as part of the development of the Western Sydney Growth Centres. Within this site, the development will be serviced by a main connector road which will be located within a 20.3m wide road easement with a minimum trafficable width of 11m.

The perimeter road along Bells Creek is classified as a local street and will have a minimum trafficable width of 9 metres. This through road will be located within a 14.3m wide road easement.

The road system is well linked and contains no cul-de-sacs.

7.2 PROPERTY ACCESS ROADS

Not applicable.

7.3 PERIMETER ROADS

The perimeter road adjacent to Bells Creek will be 9 metres wide within a 14.3 metre wide easement. Future development of the superlots has the capacity to incorporate perimeter roads into the design.

Table 2: Performance criteria for proposed public roads*[1]

Performance Criteria	Acceptable Solutions	Approach at this site
The intent may be achieved where:		
▪ firefighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources)	▪ public roads are two-wheel drive, all weather roads	▪ Complies
▪ public road widths and design that allows safe access for firefighters while residents are evacuating an area	▪ urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non perimeter roads comply with Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle) ▪ the perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas ▪ traffic management devices are constructed to facilitate access by emergency services vehicles ▪ public roads have a cross fall not exceeding 3 degrees ▪ public roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away from the hazard ▪ curves of roads (other than perimeter roads) are a minimum inner radius of six metres ▪ maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient ▪ there is a minimum vertical clearance to a height of four metres above the road at all times	▪ Complies
▪ the capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles	▪ the capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicated load rating	▪ Complies
▪ roads that are clearly sign posted (with easy distinguishable names) and buildings / properties that are clearly numbered	▪ public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression ▪ public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression	▪ Complies

Performance Criteria	Acceptable Solutions	Approach at this site
▪ there is clear access to reticulated water supply	▪ public roads up to 6.5 metres wide provide parking within parking bays and located services outside of the parking bays to ensure accessibility to reticulated water for fire suppression ▪ one way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and located services outside of the parking bays to ensure accessibility to reticulated water for fire suppression	▪ Complies
▪ parking does not obstruct the minimum paved width	▪ parking bays are a minimum of 2.6 metres wide from kerb to kerb edge to road pavement . No services or hydrants are located within the parking bays ▪ public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road	▪ Complies

*[1] PBP page 21

8 Conclusion

Based on the information provided in this Bushfire Protection Assessment, the proposal meets the requirement of Planning for Bushfire Protection (2006) and provides an acceptable level of bushfire protection for the site.

Steven House
Director

9 References

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10 Photographs

Photo 1: View across Bells Creek

Photo 2: SGTF adjacent northern boundary of subject land at eastern end

Photo 3: Golf course under construction to east of subject land

Photo 4: SGTF on southern side of subject land

Photo 5: Cumberland Plain Woodland across Richmond Road on western side of subject land

Photo 6: SGTF on northern side of subject land

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