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3 July 2013

Warringah Council
Civic Centre
725 Pittwater Road
DEE WHY NSW 2099

Attention: Theo Zotis

Dear General Manager,

Planning Proposal Ralston Avenue, Belrose

Thank you for your letter 12 June 2013 in relation to the Planning Proposal currently being assessed by Council for the subject site at Ralston Avenue, Belrose. The applicant has considered your additional assessment information requirements and the summary of public submissions and provides a summary response to each item in the attached Table 1.

In addition to Table 1, a more detailed response from the relevant technical consultants is provided in the following attachments:

Attachment 1: Revised Subdivision Layout

Attachment 2: Flora and Fauna Summary - Travers

Attachment 3: Traffic Response

Attachment 4: Frog Advice

Attachment 5: Warren Smith and Partners Response

Table 2 provides a summary response to the public submissions summary provided in attachment 2 of your letter.

Should you wish to discuss any further information requirements or the nature of our responses, then please do not hesitate to contact me on 02 8233 7609.

Yours sincerely,

Matthew O'Donnell
Associate Director

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TABLE 1 – RESPONSE TO COUNCIL LETTER 12/6/13

ITEM NO.	COUNCIL COMMENTS	RESPONSE	ATTACHMENT
1.0	**Land use Zone**		
1.1	The Planning Proposal emphasizes that 12.7% of Lot 1 in DP 1139826 is to be rezoned to R2 Low Density Residential and RE1 Public Recreation with the remainder of the site being available for conservation including the possibility of vegetation offsetting, biodiversity certification and the like.	In light of Council's position on zoning, the applicant does not object to Council rezoning the site as follows: ▪ E2 Conservation Zone for the Offset Area ▪ R2 Low Density Residential for lots ▪ RE1 for the recreational areas Council should however give consideration to the implications of rezoning the APZs as E2, and the potential benefits in the management of the APZs under the E3 zoning.	
1.2	Although the exact 'offset' mechanism and details have not been finalised, it's obvious that a significant emphasis is placed on the conservation lands as justification for the loss of biodiversity over more than 17 hectares. The proposed E3 Environmental Management zone does not offer the required protection due to the range of permissible uses. Rather the objectives of the conservation lands are more in line with those set out in the E2 Environmental Conservation zone.		
2.0	**Land Management**		
2.1	MLALC has stated a preference that the management of the conservation lands be designated to the National Parks and Wildlife Services as a National Park area.	The MLALC has met with Council staff and agreed that while the lot may not have been granted under section 36A, a large proportion of the proposed additional Part 4A Park adjacent to Garigal National Park is able to be granted pursuant to section 36A of the ALRA, and 36A(4) allows for additional lands, such as these already granted lands to be added, with MLALC consent. The concept of a co-managed national park is ground breaking and will take some degree of procedural process before implementation. The actual procedure may well be conservation	
2.2	However, it is Councils understanding that in order to be eligible to create a national park under Part 4A of the NPW Act, the land must be either listed in Schedule 14 of the NPW Act or have been granted to the MLALC under section 36A of the Aboriginal Land Rights Act 1983 (NSW). There is a legal question whether section 36A of the Aboriginal Land Rights Act 1983 (NSW) applies to the land.		

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2.3	The retention of the land in MLALC ownership may also rule out other options such as adding the conservation area to the Garriga! National Park.	agreement as a temporary measure in trust with DOP as is typical with land acquisitions.	
2.4	An option to be considered is the development of a Conservation Agreement with the Minister for the Environment under Part 4 Division 12 of the NPW Act. A Conservation Agreement seems to provide some advantages over other options (such as the dedication of an Aboriginal place), as the Agreement does not require legislative change, and the parties are bound by the terms of the agreement. It is clear that further discussion is required in respect to the proposed ownership and management.	Notwithstanding that it is a matter for OEH and DOP. In the meantime there are several options available that can be used as conservation measures and these include: Land may be identified as offset areas in any 'application for biodiversity certification' where the land is proposed to be permanently set aside for conservation purposes and has a source of ongoing funding that is used to actively manage the land for biodiversity conservation outcomes. Land subject to permanently managed and funded conservation measures can be used to create ecosystem credits and species credits to offset the impacts of the conferral of biodiversity certification on the land. These measures include; 1. reservation of land under the NPW Act 2. entering into of a Biodiversity Banking Agreement with respect to the land under Part 7A of the TSC Act 3. acquisition and retirement of biodiversity credits from the biodiversity register established under Part 7A of the TSC Act where the biobanking site is within the biodiversity	

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		certification assessment area 4. dedication of land as a flora reserve under section 25A of the Forests Act 1916 (NSW). Where an offset is proposed that includes the transfer of land to DECCW for reservation under the NPW Act, consultation must occur with the relevant Parks & Wildlife Group Branch Director in OEH at the earliest possible stage. No commitment can be made to accept an offset that includes the transfer of land to DECCW for reservation without the written agreement of DECCW. The bio certification approach also permits the rezoning to proceed on the basis of implementing the proposed conservation measures (biodiversity offsets) through various means such as permanently managed conservation measures and actively managed under the bio certification process, for example; 1. entering into of a conservation agreement under Division 12, Part 4 of the National Parks and Wildlife Act 1974 (NPW Act) 2. entering into of a trust agreement under Part 3 of the Nature Conservation Trust Act 2001 (NCT Act) if the agreement is registered on title 3. consent to a Property Vegetation Plan for land under the Native Vegetation Act 2003 (NV Act) that does not permit	

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		broadscale clearing (if registered on title) 4. entering into of a biodiversity certification agreement under section 126ZH of the TSC Act 5. entering into of a planning agreement under the EP&A Act that makes provision for development contributions to be used for or applied towards the conservation or enhancement of the natural environment, and 6. entering into of a conservation agreement under the EPBC Act. The measures with respect to public land which may be regarded as permanently managed conservation measures include: A. classification of land as community land under the Local Government Act 1993 (LG Act), provided the land is categorised as a 'natural area' and is managed under a plan of management adopted under Division 2 of Part 2 of Chapter 6 of that Act primarily for nature conservation B. reservation or dedication of Crown land under Part 5 of the Crown Lands Act 1989 (CL Act), provided the land is managed under a plan of management adopted for the primary purpose of conservation.	

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		Source: Biocertification methodology (OEH website, 2013) In this regard EcoLogical Australia (ELA) have been engaged to advise on the Biodiversity certification process and, possible arrangements for securing the conservation area and long term management (Conservation Agreement). Given the wishes of MLALC it would see the dedication of lands under the NPWS Act and occur with Joint management as described in no 1 above.	
3.0	**Technical Reports**		
3.1	Appendix A – Overview. This section includes a number of maps and diagrams which stipulates the rationale for the lot layout and development boundaries. Any changes to the technical studies will inevitably result in amendments to these maps.	Please find attached maps and plans as amended at Attachment 1.	Attachment 1
3.2	Appendix B – Ecological Constraints and Biodiversity. The ecological constraints and impacts upon biodiversity is a critical consideration for this proposal. As such, Councils feedback in this regard is detailed and enclosed as Attachment 1.	Noted, and response provided throughout table and part of Attachment 2.	Attachment 2
3.3	Appendix C-Open Space and Recreation Study The 7,000sqm park is not located in a central location. Further the park is located on sloping land and not conducive to	The applicant has given consideration to Council's comments and has revised the subdivision layout. The revised proposal does not include small pocket parks. The proposal now includes a centrally located park, retains the large park area in the NW of the	Attachment 1

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	establishing a kick around area, or basketball courts as stated in the proposal.	development site and introduces a large park area, capable of accommodating kick around area, courts etc. Whilst Council suggest that there is an overprovision of large parks in the surrounding area, the applicant considers that the proposed subdivision in order to be viable will require public recreation areas for the benefit of the new residents and the surrounding existing community. The provision of additional recreational areas will have a significant community benefit. The proposed retention of significant vegetation and habitat in the large park area forms part of the APZs for the site whilst providing potential walking platforms and nature platforms for future residents to interact with the natural vegetation of the area. Details of this park will be resolved as part of future DAs. In terms of maintenance, the applicant considers that Council would be best positioned to maintain and manage the proposed parks, as a result of the increased residents who will essentially be additional rate payers to Council.	
3.4	It appears the size and location of the park has been dictated by the bushfire hazard rather than any open space or community master planning rationale. Belrose generally has an overprovision of both active and passive rec. open space, that is, the provision of 5.78ha/1000 of open space compared to 2.78ha/1000 stipulated by the Department of Planning and as such the provision of such a large park, that Council will be required to maintain, is not justified.		
3.5	The large park also contains significant vegetation and habitat. As such it is recommended that the park area be instead consolidated into the proposed environment management/conservation area.		
3.6	The small pocket parks seem to be of limited value, are not practical, and will also further burden Council into terms of maintenance costs. One consolidated larger park in a location central to the development would provide greater benefit and more cost effective maintenance compared to a number of disjointed pocket parks.		
3.7	The Gondwana report does not provide any justification regarding the location and configuration of the proposed parks from a user or maintenance perspective.		
3.8	There is an elevated area within the proposed residential area which would serve as an opportunity for a hilltop park. A park in this location would benefit as a neighbourhood 'marker' or feature as it would be visible from within		

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	and beyond public places and residential areas.		
3.9	Note that further comments from Councils recreation planners will be forwarded once finalised.		
4.0	Appendix D - Infrastructure Services and Water Management Councils does not have any comments in respect to the Services report.		
4.1	In terms of Water Management, the following matters should be addressed; In the absence of a community title subdivision an alternate ownership and management regime should be proposed in respect to stormwater quality & quantity infrastructure, civil infrastructure, APZ maintenance and any other common facilities.	The infrastructure zone is likely to include the APZ area which was proposed as an E3 zone, however this zoning is likely to be E2 as part of council's preferred zoning. It is proposed the maintenance of the "Water Management" structures be considered under the provisions of a "Conservation Agreement", or the like.	
4.2	The documentation shall be updated to indicate the existing natural watercourses.	WS&P's documentation (Appendix D Planning Proposal) shall be updated to confirm the existing natural watercourses.	
4.3	The proposal is for individual lots to provide for onsite detention (OSD) system and does not include flood mitigation from the proposed roads and footpaths. The size of the proposed subdivision requires a holistic OSD system which is to be maintained by either a community title subdivision or alternate ownership structure. Council is not to be burdened with the ongoing maintenance of water quality and quality	Reference is made to WS&P's Infrastructure Services Strategy Concept Design Report, Revision E, dated 23rdNovember 2012, which addresses flood mitigation from the proposed roads and footpaths, extracts of which are provided below. The basis for the design of the OSD system is as follows:-	

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	infrastructure.	▪ On-Site Detention (OSD) will be provided in accordance with Warringah Council's 'On-site Stormwater Detention Technical Specification, September 2007' namely:- - Post-development runoff to be restricted to State of Nature flow rates for the 1 in 5, 20 and1 00 Year ARI Storms; - OSD Tanks to be designed to contain the 1 in 5 Year ARI Storm if the overland flow path does not pass through downstream properties; - OSD Tanks to be designed to contain the 1 in 1 00 Year ARI Storm if the overland flow path does pass through downstream properties; - Pipe flow from the site is not to exceed the 1 in 5 Year ARI State of Nature flow rate. - OSD is proposed to be provided both in lots and in the road network:- The development of each sub-divided lot will include the installation of a rainwater and OSD tank, - Additional OSD 'Will be required to be provided for the road network. It is expected that this storage will be incorporated into the Bio-Retention Swale system. The applicant will prepare a holistic and detailed concept for management of stormwater within lots, roads etc. This detail will be	

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		considered as part of future DAs.	
4.4	The capacity of the existing creeks and channels must be evaluated against the post development stormwater discharge flows to ensure that it not exceeded for all storm events.	As per item 4.3, it is proposed that the development will restrict post-development flows to a State of Nature scenario for a range of storms, up to and including the 1 in 100 year ARI event. A 'DRAINS' model will be undertaken at DA stage to demonstrate that appropriate OSD systems will be provided to ensure that additional flows from impervious surfaces will be detained on site. This will ensure that there will be no additional flows from the proposed development which would affect the capacity of the existing creeks.	
4.5	The proposal is to demonstrate that development will not have an adverse impact on downstream environments.	Please refer to extract at Item 5, Attachment 5.	Attachment 5
5.0	**Appendix E- Bushfire protection**		
5.1	The proposed APZ's have been calculated on the premises that future dwellings are to achieve BAL 29. The proposed APZ's are based on the slopes being within the range of 15-20° however slopes in this location often exceed this.	Planning of the subdivision is in full accord with PBP 2006 and AS3959. The BAL 29 options are permissible by the RFS for subdivision. Further setbacks are not required for zoning purposes.	
5.2	Proportions of the proposed APZ's are located on land on steep land (ie. Slope >18°) which is not comply with Planning for Bushfire Protection 2006 and presents significant difficulty and cost regarding management of fuel loads. As some slopes	The slope of the land occurs on rock landscapes typical of Sydney sandstone. RFS concerns about slope relate to soil erosion and overall environmental protection. Given the substrate is rock there	

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	far exceed 18°, a modification to the layout may be appropriate.	is no nett environmental concern in that regard. The landscape has been carefully examined to ensure that asset protection zones can be managed effectively. Modifications to the layout are not justified. A concept fuel management plan can be provided to enunciate how the fuels can be managed.	
5.3	Page 16 states that a Fuel Management Plan is to be developed to consider the management of fuel loads in perpetuity and the slope constraints. The Travers report should be updated to include acceptable solutions likely to be endorsed in a Fuel Management Plan. As the APZ is located outside of individual lot boundaries, the responsibility of maintenance obligations for the APZ fuel loads should be determined prior to Council seeking Gateway Determination.	APZ management is currently proposed to be undertaken by MLALC as part of the E3 lands being retained under their ownership. It is understood that council has a preference to zone this land E2. It is proposed the maintenance of the APZ areas be considered under the provisions of a "Conservation Agreement", or the like.	
5.4	Page 16 states the need for a Strategic Bushfire Management zone which includes a burn off of bushland between the fire trail and APZ every 7 years. The effect of this requirement on native vegetation and any offset bio- certification strategy needs to be quantified within the ecological and biodiversity report. Further the delineation of responsibility of such actions needs to be clarified.	The impact of burns is considered in the biodiversity certification strategy. The applicant has commenced a bio diversification strategy and this detail is to be discussed in that documentation with appropriate input by Travers Bushfire and Ecology (TBE).	
5.5	Page 16 states that fire trails are to be upgraded which will equate to a further loss of vegetation. As the upgrades are directly related to the proposal, the effect on native vegetation needs to be quantified within the ecological and biodiversity report. Further the delineation of responsibility of such actions needs to be clarified.	The Applicant has identified the fire trails as a community resource for community protection and the impact of the proposed fire trail works is a benefit not a negative.	

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	Given the extent of bushfire threat, a fire trail may need to be provided on the edge of the asset protection zone and clearly delineate the boundary of managed to unmanaged land.	Existing fire trails (see below) in MLALC ownership are to be managed as they have been for many years and should not be earmarked for additional assessment by Council as if these are new works. One new fire trail link is proposed to the northwest and can be assessed within the 7 part test if required. As council are aware fire trails that occur on Council (and important private lands) are funded by the RFS via the local bushfire protection committee processes.	
5.6	Future development controls such as minimum front dwelling setbacks facing the APZ, the location and width of roads, and density of vegetation within the future residential and APZ interface will need to be implemented through either LEP provisions or a Voluntary Planning Agreement.	APZ management is currently proposed to be undertaken by MLALC as part of the E3 lands being retained under their ownership. It is understood that council has a preference to zone this land E2. It is proposed the maintenance of the APZ areas be considered under the provisions of a "Conservation Agreement", or the like.	
5.7	Perimeter roads shall have a carriageway of at least 8m with 6.5m being the minimum for internal roads. Further, Wyatt Avenue may need an upgrade through the narrowed unformed section.	Agreed	
5.8	The Appendix designates solutions to complex issues within future reports such as a Fuel Management Plan and Strategic Management Zone. This does not provide for sufficient certainty for such a critical issue. As such, the proposed solutions be provided prior to Council recommending the application to Council.	Travers Bushfire and Ecology will be preparing a concept; ▪ fuel management plan and ▪ strategic management zone	

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		as part of future studies.	
6.0	**Appendix F Traffic implications**		
6.1	Due the majority of traffic generated from the development (and possibly buses) will utilise Wyatt Avenue, the narrow unformed section should be upgraded to (northern side and west of Contentin Avenue).	The section of Wyatt Avenue west of Contentin Avenue can be upgraded within the scope of works for the project.	
6.2	Figure 5 should be expanded to show volumes at the Hews/Forest Way intersection, particularly as Figure 6 and Page 13 projects traffic distribution at this location.	An amended Figure 5 is provided at Attachment 3.	
6.3	Part 4.1 Road System- The map between page 10 and 11 is difficult to interpret and should be updated to detail the carriageway, reserve widths and be colour coded to show road hierarchy.	Revised road cross sections and colour coded Road Hierarchy Plan are attached (Attachment 3) incorporating 8m wide collector road.	Attachment 3
6.4	The road widths and cross sections within *Appendix A 07_Street Hierarchy* maps are inconsistent with statements within the planning documents including the Travers Bushfire assessment **(REF:** 111278). It appears the proposed roads have been designed in accordance with AMCORD which generally work to design speeds of 15-40km/hr. There is no evidence to suggest that speed will be effectively restricted through proposed road designs. Council's standard for local roads is a 15 metre reserve inclusive of an 8 metre carriageway, and 17 metre reserve inclusive of a 10 metre carriageway. Further the Bushfire report also states that a 13-15 metre carriageway is required for primary evacuation routes which would be considered to include the perimeter	The Traffic Report Section 5.3 P.15 (Appendix F Planning Proposal) states that traffic management measures will be applied to constrain speeds on the access roads to 40kmph (maximum). Examples of the traffic management measures are provided on the attached extract from AMCORD and this can be dealt with by Consent Condition.	

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	roads. Further discussion is required in regards to whether the roads are to be built to Councils specifications as opposed to a more flexible arrangement with roads to be retained in 'private' or under community ownership. Depending on the ownership arrangement, the dimensions of verges and carriageways width will vary.		
6.5	In the interest of pedestrian safety, Council requires shared pathways within the verge of all permitter roads and a footpath within the verge on at least one side of the local roads.	As indicated in Section 6 P.17 (Appendix F Planning Proposal) a shared path will be provided along the collector road and a pedestrian path along the other roads.	
6.6	Road design should incorporate templates for 10.2 metre waste collection vehicle and larger trucks for deliveries during construction.	For purpose of the rezoning a Consent Condition should be adequate.	
6.7	The cross section between page 10 and 11 should include numerical break up of verge/path/carriage/verge widths.	The attached new Cross Section diagrams (Attachment 3) provide the requested details.	Attachment 3
6.8	Street tree and street tree bays may not be appropriate within the bushland buffer due to the required APZ's. Further, Council would not accept street tree bays within carriageways if they interfere with waste collection and are likely to compromise pavement longevity.	This matter will be resolved as part of future DAs. Issue is noted.	
6.9	Bicycle and shared paths should be connected to existing bicycle routes and footpaths located within the verge of perimeter roads to ensure transition onto existing trails and access points into the conservation lands.	The footpath, shared path and bicycle path connections to the existing external systems can be incorporated within the scope of works for the project.	
6.10	Page 11- The report figures should be updated to use 0.85 vtph (peak hour) which	This is extensively addressed in the traffic report (Appendix F	

<table>
<tr><th>ITEM NO.</th><th>COUNCIL COMMENTS</th><th>RESPONSE</th><th>ATTACHMENT</th></tr>
<tr><td></td><td>reflects the likely development of detached housing on an average of 600sqm lots in an area with marginal access to public transport. The increase in vtph modelling is not expected to result in unacceptable delays.</td><td>Planning Proposal). There is no survey/analysis document to support the 0.85vtph per dwelling. A recent study undertaken for RMS included the results of a survey assessment of 1,335 dwellings at Westleigh with a low “public transport accessibility” score of 6.

The recorded peak periods trips were as follows:

<table><tr><th></th><th>Total trips</th><th>Trips per dwelling</th></tr><tr><td>AM</td><td>790</td><td>0.59</td></tr><tr><td>PM</td><td>808</td><td>0.60</td></tr></table>
In order to assess the intrinsic traffic generation of dwellings at Belrose surveys have been undertaken of dwellings accessed on Perentie Road by Roar Data Pty Ltd. The results of the survey of the 196 dwellings is attached and the calculated vtph per dwelling are as follows:

<table><tr><th></th><th>Total trips</th><th>Trips per dwelling</th></tr><tr><td>AM</td><td>92</td><td>0.469</td></tr><tr><td>PM</td><td>100</td><td>0.510</td></tr></table>
It is apparent that the adopted generation rate in the traffic assessment is entirely appropriate.</td><td></td></tr>
<tr><td>6.11</td><td>The findings on Page 13 & 14 should be graphically presented to enable an easy comparison with Figure 5. The Page 13 findings indicate a significant increase of flows at Wyatt Avenue/Forest Way. Are there any required works or</td><td>The assessed operational performance of the Forest Way and Wyatt Avenue intersection is quite satisfactory and there is no</td><td></td></tr>
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	phasing to improve performance?	requirement for any roadworks. The proposed “seagull” treatment at the Forest Way/Ralston Avenue intersection is indicated on the attached concept diagram (Attachment 3).	
6.12	Page 13- The required seagull island at Ralston/Forest Way is supported however it shall be provided at no cost to Council and prior to the registration of the first residential lots. Consultation with the RMS will be required in this regard.	Noted	
6.13	Page 14- Is the improvement of the AVO at Ralston due to the proposed seagull island? If so the report shall include commentary to that effect.	It is confirmed that the improvement to the Level of Service “Post Development” is a consequence of the provision of the seagull island treatment.	
6.14	Page 15- The statement regarding Road Geometry is incorrect. The proposed carriageways are not consistent with the Bushfire assessment report and Councils standards.	The collector road will be 8m wide to comply with the bush fire requirements	
6.15	Page 17- The desirable bus route should be mapped.	The redirection of buses will be subject to determination by the service provider. However, it is envisaged that the Forest Coach Lines service will be redirected from travelling along Cotentin Road to travel along the entirety of the Ralston Avenue – Wyatt Avenue route from/to Forest Way.	

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6.16	The proposed perimeter and distributor roads are located on steep land. A more realistic road alignment should be investigated with a likely alteration of zoning boundaries a result. Any road batters and verges should be kept out of the conservation zone.	Noted	
7.0	**Appendix G- Zoning and Building heights**		
7.1	The E2 Environmental Conservation zone is considered as preferred for the 'conservation lands'.	Noted. Zoning maps can be updated to reflect the zoning of the site.	
8.0	**Appendix H- Economic Impact**		
8.1	Noted	No response required.	
9.0	**Appendix 1- Housing needs study**		
9.1	Contrary to statements within the Planning Proposal, there is no evidence to suggest the proposal will provide a variety of housing types. It appears the street hierarchy and spatial layout has been designed to accommodate for 550-700sqm lots for detached housing; a standard and predominate subdivision pattern for the area.	The proposal will provide a mix of dwelling types that will be determined as part of future DAs. The applicant is not in a position to commit to potential future dwelling mixes and types, until detail design of the future subdivision DAs.	
10.0	**Appendix J- Aboriginal Archaeological Assessment** Council notes the following;	Noted. No further action considered necessary.	
10.1	There are no registered Aboriginal sites within the study area.		
10.2	The study area falls within a high potential zone for unrecorded sites, according to		

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	Council's GIS		
10.3	The vegetation on the site makes it difficult to confirm if there are any previously unrecorded Aboriginal heritage in the proposed development area.		
10.4	The AADDA states that the likelihood of previously unrecorded Aboriginal heritage being uncovered during the site's development is low due to the unsuitability of the terrain for extensive Aboriginal occupation.		
11.0	**Appendix K Contamination assessment**		
11.1	No concerns are raised at this stage of the assessment.	No response required.	
12.0	**Appendix L- Geotechnical Assessment**		
12.1	No concerns are raised at this stage of the assessment.	No response required.	
13.0	**Appendix M- Social Impact**		
13.1	Contrary to statement within the planning proposal, there is no evidence to suggest the proposal is to provide a variety of housing types.	The proposal will provide a mix of dwelling types that will be determined as part of future DAs. The applicant is not in a position to commit to potential future dwelling mixes and types, until detail design of the future subdivision DAs. The provision of affordable housing stock will be considered by the applicant as part of future DAs for the site and can be discussed with Council as part of any pre DA meetings in the future. The proposed road layout is in accordance with the required	
13.2	The opportunity to provide some affordable housing stock has not been proposed contrary to recent State Government policy direction.		
13.3	The proposed road layout does not accord with the recommendation from the bushfire report and Council's engineering design standards.		
13.4	Community safety will be determined by compliance with the APZ Management		

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	Plan in perpetuity.	bushfire standards as outlined in Appendix E of the Planning Proposal which demonstrates the proposal is in accordance with the Planning for Bushfire Protection Guidelines.	
14.0	**Appendix N- Electrical Services**		
14.1	No concerns are raised at this stage of the assessment	Noted	
15.0	**Appendix 0- Consultation report**		
15.1	The report should be updated to include the author's details.	The author of the report was David Robinson from KJA. Level 9, 2 Elizabeth Plaza, North Sydney NSW 2060 PO Box 302, North Sydney NSW 2059	
16.0	**Appendix P Survey Plan and Q Pre-lodgement information**		
16.1	Noted	Noted	
17.0	**Attachment 1: Natural Environment Unit assessment.**		
17.1	Councils Natural Environment department have provided the following comments in the context that further consultation and concurrence is likely to be required from state agencies and that further reporting requirements can be stipulated within any Gateway determination.	Noted	
17.2	**Introduction** Generally, the Planning Proposal has not demonstrated that the proposed layout and scale of the subdivision is the most suitable use of the site and that all	Noted	

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	environmental impacts will be adequately avoided or mitigated.		
17.3	**Recommendations summary:** The following information must be provided to allow for an adequate assessment of the proposal;	Noted	
17.3.1	Assessments of significance in accordance with Section 5A of the EP&A Act. Please confirm the current status of this assessment and likely time for completion.	A draft 7 Part Test has been completed and will be supplied to Council upon final review of the test by MLALC and Matthews Civil.	
17.3.2	A defined process for avoiding, mitigating and offsetting impacts of development on threatened species located on the site. There is ambiguity regarding the proposed offset mechanism and the capacity of the site to suitably offset all impacts on threatened species. If the proposal is unable to demonstrate satisfactory offset mechanisms, the proposal should be considered unsuitable.	To be addressed as part of the biodiversity certification assessment and strategy to be submitted under separate cover.	
17.3.3	A survey of all watercourses on the site and a hydrologist report identifying the impact of development on any creeks and riparian zone both on the site and downstream of the site.	The applicant will undertake a Watercourse Assessment that will be forwarded to Council under separate cover. Survey information currently available has been reviewed and is confirmed as up to date and correct.	
17.3.4	Who will be obligated to maintain APZ fuel loads and has the area been excluded from a potential offset site?	It is proposed the maintenance of the APZ areas be considered under the provisions of a "Conservation Agreement", or the like. The Biodiversity Assessment process will consider the basis for the	

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		make-up of the offset site.	
17.3.5	The parameters of the proposed residential area seems to have been developed on the basis of topography (i.e. the relatively flat areas) rather than the presence of threatened species, many of which would be considered as 'red flags' under the bio-certification methodology which constrains development.	The proposed development has been influenced by topographic position and the presence of threatened species, resulting from survey work undertaken by Travers bushfire & ecology (TBE). The target specialist surveys completed to date, by TBE, have not indicated any need to significantly modify the design. Further studies completed by Dr Mahony and Mr Gerry Swan have essentially supported the proposed development design with only minor modifications required to peripheral areas of the development to ensure protection of important threatened species habitat.	Attachment 3
17.4	**Are the concerns likely to amend the proposal in its current form?** Yes. Of primary concern is that the current proposal does not demonstrate that the full impact of threatened species and determined the associated mitigation measures in accordance with a hierarchy of 'avoid, mitigate then offset'.	Given that the planning proposal is proposed to be assessed under Biodiversity Certification, the impact of the planning scheme on threatened species and the required mitigation measures are yet to be fully examined. This process needs to be completed prior to making conclusions as to the level and significance of the impacts and whether mitigation measures are required.	
17.4.1	The Travers Ecological Constraints report (April 2013 REF A12079) states that “A planning proposal has been prepared that aims to utilise developable portions of the	This is entirely incorrect. The engagement of Dr Mahony and Mr Gerry Swan were briefed to advise in the provision of expert	

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	site". Based on the presence of threatened species and communities within the footprint, no attempt appears to have been made to design the footprint around listed threatened species and communities present on the site.	opinion which we were required to apply. Given the results of our surveys and their results the final development layout will be determined at the development application stage. In the meantime the process provides a development planning proposal inclusive of an extensive ecological conservation plan with ongoing financial support. The impacts on recorded species were considered to be 'not significant' given the planned conservation of important habitat surrounding the site beyond the escarpment. In this regard the escarpment is an important demarcation line for ecological constraints as well as for the development. The specialist advice to date is proving that with the exception of selected locations the escarpment line is an important ecological boundary below which significant threatened fauna and flora habitat is present.	
17.4.2	The scale of the proposal and associated APZ would result in substantial indirect Impacts associated with the large perimeter to edge ratio with adjoining offset areas.	The asset protection zones are expected in a high danger area but they are appropriate for the site. The asset protection zones also act as a managed buffer which contributes to the overall protection of ecological communities and processes and avoids the scenario of backyards being placed directly on the boundary of important bushland areas. As a result of the APZs the interface can be managed to avoid weed infestations and other edge effects from development.	
17.4.3	The extension of Wyatt Avenue may isolate Grevillea caleyi from adjoining potential habitat and result in indirect impacts on the local population. An amended road	A modified Wyatt Road layout is not yet justified on the basis of significant suitable habitat being present within the adjoin	

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	layout should be prepared to ensure there is no impact on this population of Grevillea caleyi.	substation lands. Further target survey may demonstrate that the population is far more extensive and loss of 6 Grevilleas can be sustained in the landscape.	
17.4.4	The proposal should be redesigned to limit impacts upon 0.15 ha of the EEC Coastal upland swamp.	A loss of 0.15 ha of the EEC Coastal Upland Swamp is in itself insufficient justification to modify the proposal on the basis that 92% of the total area of the EEC in larger contiguous areas will be protected.	
17.4.5	The Travers Ecological Constraints report (April 2013 REF A12079) states that adequacy of the offsets will need to be assessed against the Bio-banking I Bio-certification assessment methodologies. Threatened species and communities known to occur in the footprint would be considered 'Red Flags' under the methodology which substantially constrains development.	To be assessed and advised by the Biodiversity certification assessment.	
17.4.6	The north-west section of the proposal affects areas of core habitat with high biodiversity value including Pygmy Possum {identified in the area) and is in proximity to the most significant known records of Southern Brown Bandicoot in the locality. Further the significance of the impacts on Varanus rosenbergi will need to be investigated.	There is no evidence to suggest that the proposal is impacting substantially on core habitat which cannot otherwise be avoided within minor changes in the proposed road layout and asset protection zones. Despite the recording of Eastern Pygmy possum by Warringah Council on the southern side of the north western portion of the proposed residential zone, and whilst the species is present, the significance of the siting for the local population has not been demonstrated. Dr Brad Law from NSW DPI has been engaged to provide advice as a specialist and subject to his recommendations mitigations	

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		measures will be identified. Likewise the importance of the habitat for Southern Brown bandicoot has not been demonstrated as core habitat and this species has not been recorded to date.	
17.4.7	Pending the findings of the survey of all watercourses and hydrologist report the proposed layout may need to be amended to minimise the on and offsite impacts.	Watercourse Assessment study to be undertaken to confirm the existing natural watercourses. Mitigation measures will be adopted as appropriate.	
17.4.8	The proposed Asset Protection Zone land will be compromised in terms of conservation potential and as such, should be included in the calculation of land to be 'developed' rather than land to be conserved.	The asset protection zone has been including within the E3 Environmental Zone, but the impacts of the APZ have been considered as 'developed' or impacted by the ecological assessment and will be also treated in that manner under the Biodiversity certification. The ecological buffer value of the asset protection zone should not be ignored due to its ability to provide separation from the adverse impacts from residential occupation close to bushland edges. For example it will retain habitat for Varanus rosenbergi and Tetratheca glandiosa.	
	The above considerations are likely to amend the developable area, and as such should be investigated with an amended proposal presented back to Council prior to	Appropriate amendments will be undertaken as required as specialist reports are completed.	

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	consideration by the Development Assessment Panel.		
17.5	**Impacts upon threatened species and communities**		
17.5.1	As already stated in this memo, Council requires an assessment of significance in accordance with Section 5A of the EP&A Act. Where significant impacts are considered likely, this assessment would also guide referral requirements to both state and Commonwealth agencies post Gateway.	A seven part test of assessment has been prepared and is being reviewed by the applicant prior to it being submitted. However we advise that the process of assessment and referrals also needs to consider the Biodiversity certification Assessment process which will influence the outcomes and adequacy of the planning proposal. Note: Any approvals under the bio certification process will 'turn off' the required 7 part test of significance and or any determination of a significant impact; and any need for a species impact statement.	
17.5.2	Based on the extent of known threatened species and potential habitats, the direct and indirect impacts of the proposal are considered likely to be significant. In accordance with the assessment of significance guidelines, "proposed measures that mitigate, improve or compensate for the action, development or activity should not be considered in determining the degree of the effect on threatened species, populations or ecological communities, unless the measure has been used successfully for that species in a Similar situation". This is specifically relevant to the sensitivity of the immediate downstream environment and likely impacts on threatened species.	Any approvals under the bio certification process will 'turn off' the required 7 part test of significance and or any determination of a significant impact; and any need for a species impact statement. Based on studies completed to date and specialist advice the planning proposal does not cause a significant impact on threatened species, EECS or endangered populations. Further documentation and specialist input will be provided to demonstrate those outcomes and to propose mitigation measures to minimise possible impacts. This will include the submission of a	

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		holistic and comprehensive stormwater review.	
17.5.3	The planning proposal directly impacts on 0.15ha of the EEC - Coastal Upland Swamp with a further 1.27ha within the proposed offset lands. This represents an 8 % loss of this community within the study area which should be considered a significant impact on the 'local occurrence' of this EEC.	This is not a significant impact by any means as an 8% loss is not a significant impact on a local occurrence of an EEC. The EEC will not be made extinct or become fragmented as a result of the development.	
17.6	**The inadequacy of survey effort for some relevant subject threatened species**		
17.6.1	It is acknowledged that the applicant is still undertaking survey of the site (e.g. Giant Burrowing Frog). In accordance with the guidelines "If information is not available to conclusively determine that there will not be a significant impact on a threatened species, populations or ecological community, or its habitat, then it should be assumed that a significant impact is likely". Council seeks a copy of the specialist reporting with the potential for peer review.	Targeted surveys were undertaken by specialist Dr Michael Mahony with Travers bushfire & ecology during the late autumn peak breeding period along all major drainages, perched swamps and roadside gutters surrounding the subject site. A breeding location was identified within a made-made scrape next to the Heath Track which continues into Garigal National Park. This breeding location contained many tadpoles in a small number of perennial pools along the edge of the fire trail. The main larger pool contained a typical sandy substrate with a few surrounding yabby burrows and appeared to be continuously fed by ground water and not a defined drainage line. Numerous Giant Burrowing Frog tadpoles were present with no adults recorded by call or observation. No tadpoles or activity was recorded close to the subject site in locations previously identified as having potential	Attachment 3

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		breeding habitat. The recorded breeding location is located more than 300m from the north-western tip of the proposed development landscape. Dr Mahony concluded that: Dr Mahoney concluded that: ▪ The density of GBF at the site is low, and that it is most unlikely that habitats on the plateau are used routinely for shelter and foraging. Furthermore, it is not likely that development with break a corridor that connects breeding habitat with foraging and shelter sites since there are no identified breeding sites close to the plateau. ▪ The considerable distance of the identified breeding habitat from the plateau and the relatively large area of surrounding habitat indicate that indirect impacts on hydrology are unlikely to impact on the GBF breeding habitat. ▪ It is not likely that the proposal will impact on the local viable population of the GBF. ▪ There is no need for the placement of buffer zones around habitat on the escarpment since there are no identified breeding, sheltering or foraging habitat.	

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		Despite the presence of a recorded juvenile Giant Burrowing Frog onsite, the planning proposal is not expected to have a direct impact on any important breeding or burrowing habitat but will partially impact on dispersal and foraging habitat for this species.	
17.6.2	Actual detection of threatened species on site carries substantially more weight than those simply considered to have potential habitat. Based on Council's experience and independent expert advice, the use of Elliot trapping as undertaken by the applicant is not an effective method of detecting the presence of the threatened, Eastern Pygmy Possum. Council staff have observed an Eastern Pygmy within a natural hollow located within the proposed development footprint. Importantly, habitat on site is considered the preferred habitat of this species	Agreed – the observation is a matter that will be addressed by engaging Mr Brad Law – a specialist in Eastern Pygmy Possum and undertaking appropriate survey as advised by Mr Law. The significance of this observation is yet to be examined but will be considered in the Specialist report.	
17.6.3	No post fire surveys have been undertaken for threatened flora and fauna known to occur on site. Council has undertaken preliminary site inspections of the subject site and note that additional Grevil/ea caleyi and Tetratheca glandulosa records to those recorded by the applicant were observed within the proposed footprint. Further individuals of Grevil/ea caleyi and other threatened flora are likely to have germinated on site, post the hazard reduction burn which was conducted by the RFS in September 2012. The flora and fauna assessment also acknowledges that threatened fauna	Only a small portion of the site has been burnt to date. The delay to the planning proposal would also be significant to allow sufficient regeneration time. Whilst a portion of the site can be surveyed a large portion will not be in a post fire condition. The same applies for New Holland Mouse and Southern Brown Bandicoot.	

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	with potential habitat on site including New Holland Mouse and Southern Brown Bandicoot utilise recently burnt areas yet no or little post fire fauna survey has been conducted.		
17.6.4	Threatened frog surveys have not been undertaken during appropriate climatic conditions which would severely limit successful detection.	Extensive threatened frog surveys have now been completed by Travers bushfire & ecology and Dr Michael Mahony in suitable survey conditions.	
17.7.0	**Demonstrated consistency with relevant planning controls, policy and studies**		
17.7.1	The Planning proposal shall be updated were necessary to consider the following Council control and policies: Plans/Strategy/ Study — Value/ Control WLEP Clause 56, 57 and — Several Warringah Biodiversity Conservation — High Conservation Significance Warringah Creek — Category B catchment Protection of Waterway and Riparian — Protect, maintain and enhance waterway and riparian function Warringah Council's Environmental — Maintain and enhance locally indigenous biodiversity in Warringah Draft Natural Area Survey — Regional Core Habitat Table 1: A summary of relevant Warringah Council documents and the controls or values they prescribe to the site.	An Updated Ecological Report, to include commentary on relevant matters in combination with Planning submission, to be provided upon completion of specialist reports and mapping.	

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17.8.0	**Vegetation and habitat offsetting** Adequacy and suitability of proposed offsetting arrangements;	These matters can be addressed by an updated planning proposal and ecological assessment report in combination with the Biodiversity certification.	
17.8.1	The proposal does not contain sufficient information to determine if the proposed offset lands are adequate to offset the loss of specific vegetation types and threatened species recorded on site.	To be addressed as part of the Biodiversity certification assessment and strategy	
17.8.2	Some objectives and permissible development types under an E3 Environmental Management zone are not considered appropriate for an offsetting site. An E2 Environmental Conservation zone would be deemed appropriate and more likely to fulfil relevant industry guidelines on offsetting.	To be addressed by Urbis and TBE in updated Report	
17.8.3	Consistency of proposed offsets with the OEH's 'Principles for the use of biodiversity offsets in NSW' has not been demonstrated.	To be addressed by Urbis and TBE in updated Report	
17.8.4	The Travers Ecological Constraints report (April 2013 REF A12079) does not provide specific offsetting arrangement. Further, the report acknowledges that offset ratios for some vegetation types may require an offset external to the site. Additional off site offsetting may be required subject to further investigation regarding Grevillea caleyi and Giant Burrowing Frog.	To be addressed with specialist report by Dr Mahoney and potentially target survey for Grevillea in substation and burnt lands	
17.8.5	The Planning report by Urbis identifies the offset area as being Zoned E3 and preferably remaining under the ownership of MLALC as an Aboriginal National Park area under the NPW Act. There is a lack of security of proposed works and maintenance of the conservation lands with no forthcoming agreement from National Parks and Wildlife Service at this stage of the process.	MLALC is in current negotiations and discussions with NPW and Council and will keep Council informed as the process evolves.	

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17.8.6	Management of the offset area is likely to require substantial and ongoing funding. No potential funding arrangement or responsibility has been identified by the Planning Proposal. The ownership, management (under Part 4 or 4A) and funding issue will need to be clarified prior to consideration of the proposal to the Development Assessment panel.	MLALC is in current negotiations and discussions with NPW and Council and will keep Council informed as the process evolves.	
17.9.0	**The likely direct and indirect impacts of the Planning Proposal on proposed offset areas**		
17.9.1	The proposed offset areas will be subject to impacts associated with construction and management of Bushfire Asset Protection Zones, a fire trail, bike trails and increased recreational access which will impact upon biodiversity values which is inconsistent with the 'maintain or improve test'.	Subject to Biodiversity Certification Assessment	
17.9.2	Increased access to offset areas by domestic cats and dogs is an indirect impact which will increase as a result of the proposal. Further consideration of indirect impacts and mitigation for the offset areas must be addressed in future reporting.	Subject to Biodiversity Certification Assessment	
17.9.3	A development of this scale will trigger amendment to the local RFS bushfire risk management plan in relation to Strategic Fire Advantage Zones (additional to the APZ). Strategic Fire Advantage Zones (including the offset) are subject to an increased frequency of large scale hazard reduction burns (stated at 7 year intervals- Travers Bushfire Protection Assessment report). High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition is listed as a 'Key Threatening Process' under the NSW Threatened Species Conservation Act 1995 and has not been accounted for in the flora and fauna report.	This is normal for any fringe development and not important for this project.	

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17.10.0	**Creeks and Water quality**		
17.10.1	Insufficient information is available to determine the impact of the proposal on the creeks and hydrological regime on the site and downstream of the site. This is significant due to the scale of the development and its location at the top of the catchment.	The applicant will undertake a water course assessment and provide to Council upon completion.	
17.11.0	**Note;** That Council will at appropriate stages of the assessment process undertake certain actions in order to adequately assess the Planning Proposal. Such actions may include but not be limited to;	Referral for Biodiversity Certification is required to initiate consultation, Council are advised of the following team of consultants. Gerry Swan – Done	
17.11.1	Initiate consultation with the NSW Officer of Environment and Heritage early to assist formulation the best possible offset option (e.g. Bio-certification, Aboriginal Reserve, Voluntary Planning Agreements).	Dr Mahony – Done Mr Brad Law – Invitation issued	
17.11.2	The contracting of independent expert/s advice or assistance to assess the following; ▪ Accuracy and legitimacy of flora and fauna survey and reporting ▪ The assessments of significance including preparation of independent 7 part	Mr Chris Dickson – mammals (Bandicoot and New Holland Mouse) Seven part test being completed Eco Logical Australia - Biodiversity Certification Assessment - Appointed	

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	test ▪ The adequacy of any proposed offsets ▪ Vegetation offset proposals to meet the improve or maintain test ▪ Drafting of legal agreements to secure offsetting and other works Note: As per clause 11 of EP& A Regulation 2000, Council has the ability to seek costs that are incurred in peer reviewing studies or formulating legal agreements as required. Of course Council would be reasonable tin determining the instance where a peer review will be required and will be communicated to the applicant prior to undertaking the procurement process.		
17.12.0	**Other**		
17.12.1	The proposal is broadly inconsistent with the Warringah Council Bushland Policy (ENVPL 005) Section 2.2 Strategic Land Use Planning and Policy, which states; Council's strategic planning and land use planning will aim to protect and manage bushland outside national parks and reserves. Particular priority will be given to habitat for plants and animals of conservation significance, vegetation corridors and scenic landscapes. The policy includes a number of approaches regarding compliance with this objective.	Provide response in Ecological Assessment and respond after completion of Bio certification application	
18.0	**Attachment 2: Common themes received through public submissions**		
	Refer to attachment.	Refer to Table 2	

TABLE 2 – COMMON THEMES RECEIVED THROUGH PUBLIC SUBMISSIONS

CATEGORY	ISSUES	
Traffic	▪ Additional infrastructure required along current streets in order to cope with increased traffic (x11 submissions with this theme) – Intersections with Forest Way – Elm Street – Windrush Ave/ Hews Parade traffic calming – Wyatt Ave connection to site – Footpaths along Ralston ▪ Increased traffic will increase congestion x11 ▪ Increased access to public transport is required x3 ▪ Increased Wyatt Ave traffic will reduce amenity ▪ Roads should be 8.5m wide, minimum, kerbed and guttered ▪ Each block should have off road car parking spaces ▪ Existing section of Wyatt Avenue should be provided with kerb and gutter	The applicant has submitted a preliminary traffic assessment at Appendix F of the planning proposal. In addition the applicant has responded to Councils traffic engineers requests as part of Attachment 2. The applicant will provide additional road infrastructure throughout the subdivision that will connect to the surrounding road network as outlined at Attachment 3. Whilst there will be an increased amount of traffic in the area as a result of the proposal, a full traffic impact assessment will support any future development applications and consider access to public transport, traffic congestion, parking and access arrangement and traffic modelling of intersections. The width of roads will be in accordance with the Planning for Bushfire Protection Guidelines. The applicant will provide kerb and guttering to the subdivision, and give provision of ample space for off street parking for each residential lot.
Environment	▪ Loss of habitat for flora and fauna (x24 submissions with this theme) – Eucalyptus luehmanniana	The protection of the environment including flora and fauna was considered at Appendix B of the Planning Proposal and provides detail in relation to loss of habitat. In addition the summary of issues at Attachment 2 addresses flora and

CATEGORY	ISSUES	
	– Invertebrate species – Blandfordias Grandiflora (Christmas Bells) – Tetratheca Glandulosa – Angophora Crassifolia – Red flag Costal Upland Swamp – Increased road kill – Eastern Pygmy Possum – Giant Burrowing Frog – Southern Brown Bandicoot – General sentiment that reports are incomplete regarding species on site ▪ Hazards of stormwater runoff on surrounding areas x13 ▪ Area has a high fire risk x10 ▪ APZ will not protect proposed E3 area x6 – More of the APZ should be within the residential area – Weeds will grow in APZ areas	fauna. Appendix E of the Planning Proposal provides bushfire advice and assessment that has informed the overall layout and design of the proposal. It is acknowledged that the site is located in a bushfire area, and sufficient mitigation measures and management mechanisms have been considered in the master planning of the site. Future DAs will also give consideration to bushfire management and design guidelines. In light of Council's position on zoning, the applicant does not object to Council rezoning the site as follows: ▪ E2 Conservation Zone for the Offset Area ▪ R2 Low Density Residential for lots ▪ RE1 for the recreational areas Any restriction of residents to keep their pets on their lots is not a planning matter. A water management assessment will be prepared by the applicant to ensure that no development will harm Narrabeen lagoon.

CATEGORY	ISSUES	
	▪ E1 or E2 would be more appropriate zones x8 ▪ E3 zone allows for development. Additional protection is required x5 – Does not protect land – Allows for dwellings, fire trails and other clearing of land ▪ Do not approve of biobanking as a process x5 – Specifically maintain/improve test – Buying out of ecological impacts ▪ White Paper may combine E3 with rural zones (lack of protection) x4 ▪ Should be a restriction on residents to keep pets on the lots in order to protect the local environment x3 ▪ Area is a catchment of Narrabeen Lagoon and development will harm the lagoon x3 ▪ Additional studies are required to understand ecological impact x2 ▪ Electromagnetic radiation issues ▪ 'Losing' 135 hectares is unacceptable ▪ Existing trees should be incorporated into final design layout	

CATEGORY	ISSUES	
General Infrastructure	▪ Additional homes will impact facilities in the immediate area (e.g. roads, shopping centre, schools) x5 ▪ All utilities should be underground	Additional homes will contribute to Council meeting their housing targets in accordance with NSW state government policy. Potential impacts on roads will form part of a detailed traffic impact assessment as part of future DAs. Preliminary investigations indicate sufficient capacity to accommodate more vehicles as outlined in Appendix F of the Planning Proposal and at Attachment 3. All utilities will be underground.
Recreation Issues	▪ Area is currently used by people for recreation purposes x6 ▪ A high quality park should be built on the highest point of the development ▪ Recreation zones/parks need to be prepared prior to move in of new residents	Whilst the area of the site proposed for development will no longer be publicly accessible, with the exception of the proposed parks, access to the wider non developable lands and the Garrigal National Park will still be possible. The applicant proposes to develop three parks/recreation zones as part of the proposal whilst maintaining access to the wider bushland area for horse riding, mountain biking, busk walking and other similar recreational activities.
Housing Issues	▪ Development shouldn't be on a ridge top x4 – Bad planning practice – High visual impact ▪ Housing is too expensive to provide for housing alternative in the area x2 ▪ Diversity/type of housing is not promoted with this development ▪ Warringah Housing Strategy 2011 and Subregional strategy do not recommend new development in urban bushland x4	The layout of the proposal has been guided by the range of technical consultant reports attached at the Appendices of the Planning Proposal. Major consideration has been given to bushfire and ecological constraints. The proposal will provide a mix of dwelling types that will be determined as part of future DAs. The applicant is not in a position to commit to potential future dwelling mixes and types, until detail design of the future subdivision DAs. The provision of affordable housing stock will be considered by the applicant as part of future DAs for the site and can be discussed with Council as part of any pre DA meetings in the future.

CATEGORY	ISSUES	
	▪ Lots should be no smaller than existing residential blocks (e.g. 600 sqm) ▪ Houses should be free standing, not town houses or apartment ▪ Housing is too dense for the area ▪ Warringah housing supply is already increasing enough	The proposed lot sizes are in accordance with Council's minimum lot size requirements and provide for suitable private recreation space and separation distances between proposed dwellings. The future design of housing will be determined as part of future DA stages, and are likely to consist of detached dwellings.
Process Issues	▪ Consultant's reports are of low quality x7 – Environmental reports miss many species – Traffic report is not substantial enough – Low level of detail (e.g. mitigation methods) – Vision statement doesn't match with consultant reports ▪ Consultation period should have been open longer x5 ▪ Land is currently under review as part of a separate process. DAs should be evaluated based on 2000 LEP until this process is complete. X3 ▪ Creates a precedent for development of other deferred land ▪ Email was sent out to Warringah residents about the display after it was held on the 25th	The environmental reports submitted are a result of up to 18 months of investigation and field work on the site from a range of specialists including ecologists, habitat specialists, bushfire consultants and environmental engineers. Whilst there will be an increased amount of traffic in the area as a result of the proposal, a full traffic impact assessment will support any future development applications and consider access to public transport, traffic congestion, parking and access arrangement and traffic modelling of intersections. Detailed design measures and mitigation measures and management plans will be provided as part of future studies required to be submitted with DAs. Council determined the consultation period, in accordance with the required timeframes. In addition Council has held a public information session for local residents. The applicant is aware that the land is under review, and has advanced its own studies of the area significantly more than council and the Department of planning and Infrastructure. Council is supplying both authorities with its own findings to feed into the wider LEP review.

CATEGORY	ISSUES	
		Not all land can be developed as a result of potential constraints including bushfire and flora and fauna constraints, among others. Therefore precedence is not a consideration as each future development will be assessed on its own merits.
Support	▪ Low density urban form x3 ▪ General support x2 ▪ Growth in the area x2 ▪ Development will increase the amenity in the area ▪ Protecting 87.3% of bushland is 'not too bad'	Noted

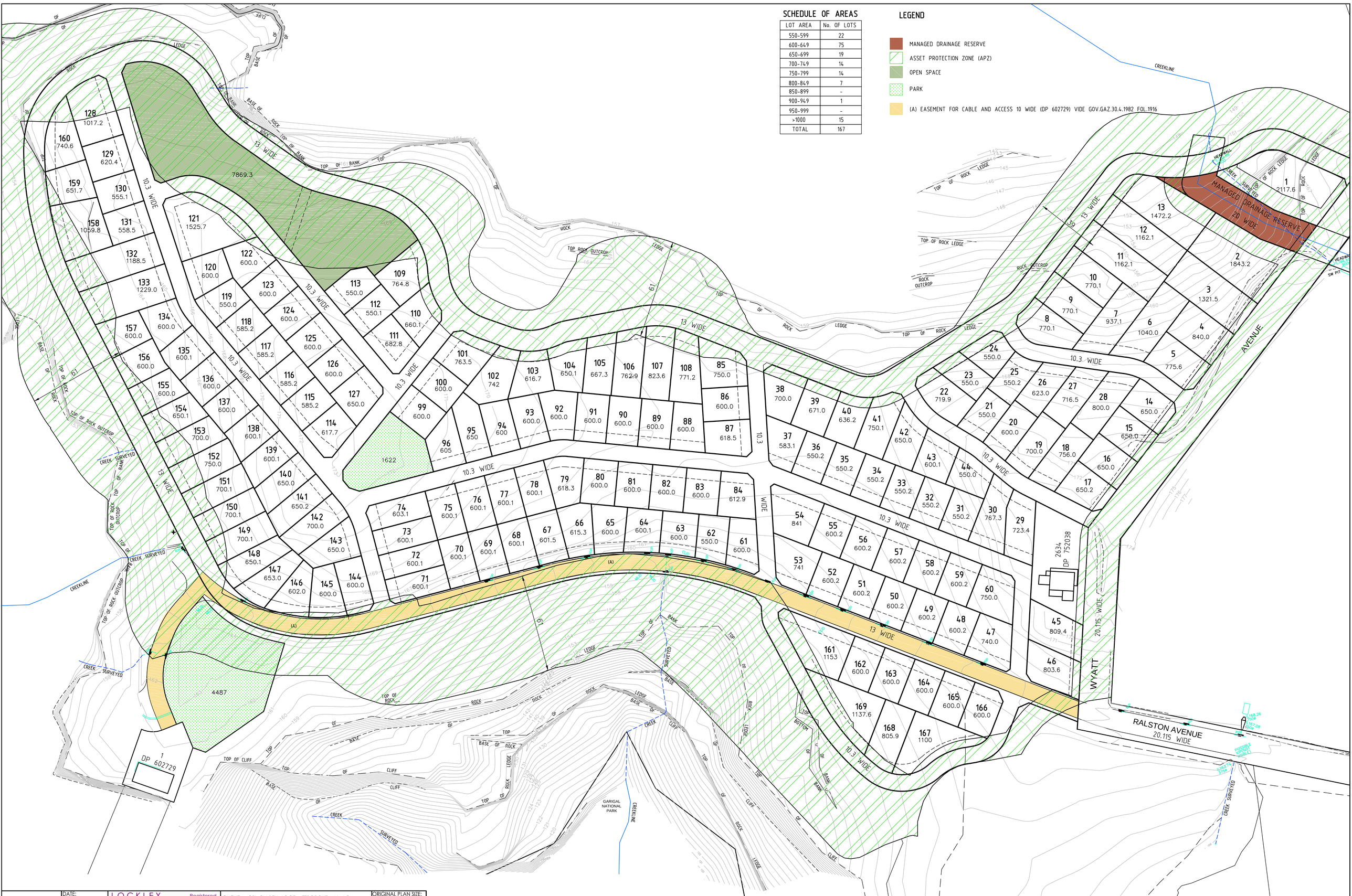
Attachment 1

SCHEDULE OF AREAS

LOT AREA	No. OF LOTS
550-599	22
600-649	75
650-699	19
700-749	14
750-799	14
800-849	7
850-899	-
900-949	1
950-999	-
>1000	15
TOTAL	167

LEGEND

- MANAGED DRAINAGE RESERVE
- ASSET PROTECTION ZONE (APZ)
- OPEN SPACE
- PARK
- (A) EASEMENT FOR CABLE AND ACCESS 10 WIDE (DP 602729) VIDE GOV.GAZ.30.4.1982 FOL.1916



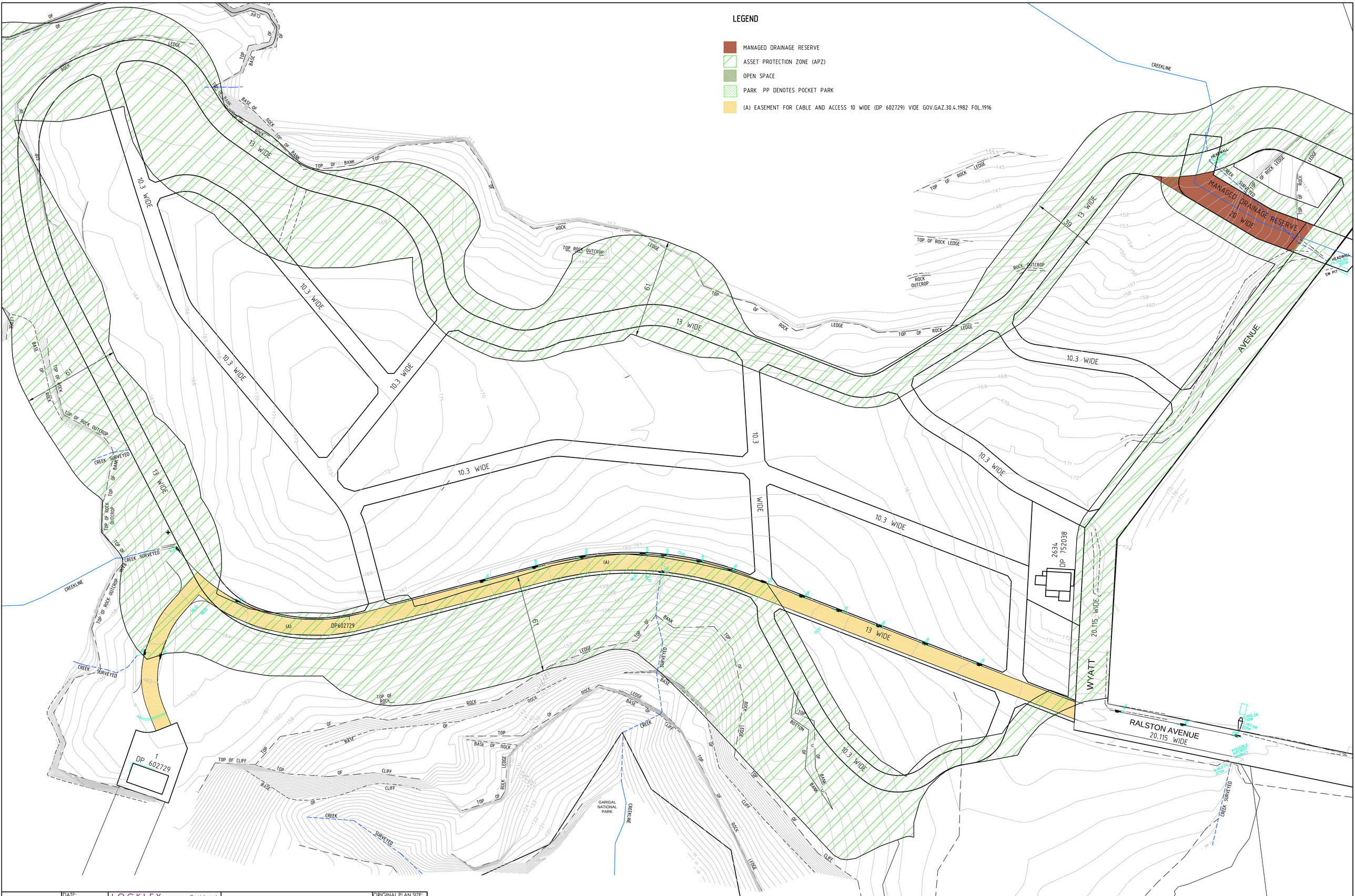
DATE: 14-11-2012	LOCKLEY LAND TITLE SOLUTIONS	CLIENT: MCPL ON BEHALF OF METROPOLITAN LALC	ORIGINAL PLAN SIZE: A1 1:1000
DATUM: AHD	Registered Surveyors NSW 19 Massey Street Gladesville NSW 2111 PO BOX 400 Gladesville NSW 1675 ph:(02) 9879 6077 fax:(02) 9879 7143	PLAN OF PROPOSED SUBDIVISION OF LOT 1 IN DP1139826 AND ROAD CLOSURES AT RALSTON AVENUE, BELROSE	PROJECT No: 30401
SITE AREA: N/A			JOB REFERENCE: 35379PS-B
Registered Surveyor NSW		LGA: WARRINGAH	SHEET 1 OF 1 SHEETS

0 25 50 75 100
1:1000

AMDT	DATE	DESCRIPTION
B	17-06-2013	POCKET PARKS REMOVED AND ADJACENT LOTS REVISED. NEW PARKS ADDED
A	27-11-2012	PARKS ADDED

LEGEND

- MANAGED DRAINAGE RESERVE
- ASSET PROTECTION ZONE (APZ)
- OPEN SPACE
- PARK PP DENOTES POCKET PARK
- (A) EASEMENT FOR CABLE AND ACCESS 10 WIDE (DP 602729) VIDE GOV.GAZ.30.4.1982 FOL.1916



DATE: 14-11-2012	LOCKLEY LAND TITLE SOLUTIONS — Registered Surveyors NSW, 19 Massey Street Gladesville NSW 2111, PO BOX 400 Gladesville NSW 1675, ph:(02) 9879 6077 fax:(02) 9879 7143	CLIENT: MCPL ON BEHALF OF METROPOLITAN LALC	ORIGINAL PLAN SIZE: A1 1:1000	
DATUM: AHD		PLAN OF PROPOSED ROADS FOR SUBDIVISION OF LOT 1 IN DP1139826 AND ROAD CLOSURES AT RALSTON AVENUE, BELROSE	PROJECT No: 30401	
SITE AREA: N/A			JOB REFERENCE: 35379PS-B ROADS	
Registered Surveyor NSW		LGA: WARRINGAH	SHEET OF 1 SHEETS	1

0 25 50 75 100

1:1000

REV	DATE	DESCRIPTION
A	25-6-2013	MINOR REVISIONS

Registered Surveyor NSW

DATE: 19-06-2013

DATUM: AHD

LOCKLEY LAND TITLE SOLUTIONS

Registered Surveyors NSW
19 Massey Street
Gladesville NSW 2111
PO BOX 400
Gladesville NSW 1675
ph:(02) 9879 6077
fax:(02) 9879 7143

CLIENT: MCPL ON BEHALF OF METROPOLITAN LALC

PLAN OF EXISTING ROADS ADJACENT TO PROPOSED SUBDIVISION OF LOT 1 IN DP1139826 AND ROAD CLOSURES AT RALSTON AVENUE, BELROSE

LGA: WARRINGAH

ORIGINAL PLAN SIZE: A1 1:2000

PROJECT No: 30401

JOB REFERENCE: 35652ROADS-A

SHEET 1 OF 1 SHEETS

Attachment 2

Summary of Ecological impacts of the proposed planning scheme

EEC Coastal Upland Swamp

The planning proposal directly impacts on 0.15ha of the EEC – Coastal Upland Swamp but conserves a larger contiguous area of 1.27ha to the south of Ralston Avenue plus a further 0.53ha to the north of the Wyatt Avenue within the proposed offset lands.

The retention of the 0.15ha patch is not feasible within the current planning scheme and represents an 8% loss of this community within the study area. Albeit that the EEC will be impacted the impact in not considered to be significant given the retention of 92% of the EEC in larger and more contiguous patches.

Threatened Flora

Based on current ecology survey, the planning proposal results in a potential loss of one hundred and one (101) *Tetratheca glandulosa* plants, and a potential loss of six (6) *Grevillea caleyi* plants within the areas proposed for residential rezoning, including road corridors.

Significant areas of potential *Tetratheca glandulosa* habitat exist within the offset lands and more extensive populations are likely to be present. However, limited *Grevillea caleyi* habitat is present within the proposed development area and either protection or restoration mitigation measures are recommended for the small population present within the disturbed northern reaches of the total land parcel.

Tetratheca glandulosa

The potential habitat areas within the subject site and broader offset area for *Tetratheca glandulosa* are extensive. The specimens observed thus far within the subject site are largely within the low open forest and open forest vegetation communities, and seldom within the tall heath as typically, these areas are very dense and do not allow enough penetration of light to the ground layer for *Tetratheca glandulosa* to thrive.

Throughout the subject site, large numbers of other Tetratheca species were sighted, notably *Tetratheca ericifolia* and *Tetratheca thymifolia,* however there were not large numbers of *Tetratheca glandulosa* recorded despite the good habitat potential. In areas where *Tetratheca glandulosa* were observed, they were typically found in clumps of 20-50 individuals.

Intensive target searches for *Tetratheca glandulosa* have not been undertaken within the offset areas. There have been some target searches undertaken within the quadrats, on the meander between quadrats and along existing walking track edges, however only one (1) patch has been identified outside of the subject site.

High numbers of *Tetratheca ericifolia* and *Tetratheca thymifolia* were observed in the offset areas and it is believed that if adequate target survey was undertaken in the offset areas, many clumps of *Tetratheca glandulosa* would also be observed.

As there are significant areas of potential habitat within the offset area, along with known recorded locations in the nearby locality from the Atlas of NSW Wildlife database (OEH 2012), it is expected that the population within the local area is large and that the loss or modification of most species within the subject site would the proposal is unlikely to disrupt the life cycle for any of these listed species such that a viable local population would be placed at risk of extinction.

Grevilea caleyi

It is expected that the species occurs within the grounds of the electrical substation as previous data from the Atlas of NSW Wildlife (OEH 2012) shows recorded locations within that area. In addition, the species occurs more frequently within the EEC Duffys Forest for which Council have mapped a portion of the vegetation within the substation grounds (eastern and southern side).

Given the presence of suitable habitat for this species offsite and provided the road corridor is moved to conserve existing specimens the fence line in the Wyatt Road corridor, the proposal is unlikely to disrupt the life cycle for any of these listed species such that a viable local population would be placed at risk of extinction.

Eucalyptus luehmanniana and *Angophora crassifolia*

An estimated 80% of both populations of *Eucalyptus luehmanniana* and *Angophora crassifolia* will be conserved. There is an estimated three thousand and sixty-two (3,062) *Eucalyptus luehmanniana* and nine hundred and seventy eight (978) *Angophora crassifolia* being protected within the proposed offset lands.

Given conservation of 80% of the estimated population the planning proposal is not considered to have a significant impact on the local populations of *Eucalyptus luehmanniana* and *Angophora crassifolia*

Threatened Fauna

The biodiversity certification assessment is being undertaken which considers impacts on threatened fauna species. Subject to the outcomes of the assessment specialist advice and or target survey may be required.

Rosenbergs Goanna

The heath habitat within the site is being utilised as foraging habitat for Rosenberg's Goanna (*Varanus rosenbergi*). Based on the target survey and the advice of Mr Gerry Swan, the Rosenberg Goanna population is not expected to be significantly impacted and a viable population can be maintained in the presence of the proposed development.

The nearest most likely breeding areas for Rosenberg's Goanna are in the north and north east portion of the study area as confirmed by Mr Swan, inclusive of lands north of the substation site. Important habitat for this species is being conserved within the proposed offset lands including burrowing, foraging and dispersal areas to the southern, south western, eastern, and north eastern aspects of the proposed residential areas.

Giant Burrowing Frog

Targeted surveys were undertaken by specialist Dr Michael Mahoney with *Travers bushfire & ecology* during the late autumn peak breeding period along all major drainages, perched swamps and roadside gutters surrounding the subject site. A breeding location was identified within a made-made scrape next to the Heath Track which continues into Garigal National Park.

This breeding location contained many tadpoles in a small number of perennial pools along the edge of the fire trail. The main larger pool contained a typical sandy substrate with a few surrounding yabby burrows and appeared to be continuously fed by ground water and not a

defined drainage line. Numerous Giant Burrowing Frog tadpoles were present with no adults recorded by call or observation. No tadpoles or activity was recorded close to the subject site in locations previously identified as having potential breeding habitat.

The recorded breeding location is located more than 300m from the north-western tip of the proposed development landscape. Dr Mahoney concluded that:

- The density of GBF at the site is low, and that it is most unlikely that habitats on the plateau are used routinely for shelter and foraging. Furthermore, it is not likely that development with break a corridor that connects breeding habitat with foraging and shelter sites since there are no identified breeding sites close to the plateau.
- The considerable distance of the identified breeding habitat from the plateau and the relatively large area of surrounding habitat indicate that indirect impacts on hydrology are unlikely to impact on the GBF breeding habitat.
- It is not likely that the proposal will impact on the local viable population of the GBF.
- There is no need for the placement of buffer zones around habitat on the escarpment since there are no identified breeding, sheltering or foraging habitat.

Despite the presence of a recorded juvenile Giant Burrowing Frog onsite, the planning proposal is not expected to have a direct impact on any important breeding or burrowing habitat but will partially impact on dispersal and foraging habitat for this species.

Red–crowned Toadlet

Red-crowned Toadlet is present throughout the nearby landscape and local records presented in our ecological assessment report suggest this species is well represented elsewhere in the nearby connective locality. Breeding aggregations are present in the majority of drainages and hanging swamp areas surrounding the subject site. The planning proposal impacts on several of the recorded sites.

Dr Michael Mahony was engaged by TBE to undertake an independent survey following the discovery of GBF tadpoles by TBE staff. Dr Mahony then undertook habitat assessment and specialist review of the impacts on Red-crowned Toadlet (along with Giant Burrowing Frog) during the late autumn and early winter of 2013.

Travers bushfire & ecology staff fauna ecologist Corey Meade provided additional assistance in target surveys at this time where the majority of drainages that run off the plateau area surrounding the proposal were searched. Search transects undertaken by *Travers bushfire & ecology* are shown in Figure 7 and searches undertaken by Dr Mahony are depicted within his attached report (Appendix 6). We will combine the mapped data within the 7 part test of significance assessment currently being prepared by TBE.

The 2013 target surveys were undertaken during suitable weather conditions predominantly following rain events which included heavy mid-autumn falls. Several new breeding locations were identified across the study area and surrounding the proposed development layout. This survey revealed that all ephemeral drainage line from the plateau and perched swamp areas provide recorded or high potential breeding habitat for this species.

The Red-crowned Toadlet has also been recorded at various locations in the surrounding connective habitats into Garigal National Park. Given that it is never found far from breeding areas

and it displays slow movement, this species is typically assumed to have a reduced capacity to disperse however results from the study area would suggest dispersal is likely possible between the separation distances of most recorded breeding areas.

The potential impacts on this species from the proposed development include:

- five (5) of a recorded 13 Red-crowned Toadlet breeding areas will be directly impacted in the form of breeding areas associated with impacted upper drainages and coastal upland swamp,
- Indirect impacts of altered water quality and / or quantity onto other recorded breeding areas as well as other potential breeding locations just of the escarpment.

Additional breeding habitats of the Red-crowned Toadlet were detected in targeted surveys and the local population occurs along most of the semi-permanent drainages and soaks that occur below the escarpment and down slope from the plateau.

Dr Mahoney concluded that:

- With the exception of one site on the western end of the plateau (human made pit) and the rock face seepage in the north-east, the majority of the breeding sites will not be directly impacted by the proposed development.
- Movement of the Red-crowned Toadlet will mostly be in the escarpment and mid-slope areas and development of the plateau will not have a significant effect on the local population due to the removal of habitat or the breaking of corridors.
- The potential for impact on the population of the Red-crowned Toadlet is assessed to be related mostly to indirect impacts on the hydrology of the breeding habitat (rate, volume, turbidity and water quality of discharge). Specific mitigation measures are required to ensure that the hydrology of these sites is not altered by the proposal.
- Protection of the considerable area of Red-crowned Toadlet habitat below the escarpment and at mid-slope should protect the local viable population.

<u>Non recorded threatened Species with potential to occur</u>

The following species have been identified as having potential to occur.

- Southern Brown Bandicoot (*Isoodon obesulus)*
- Eastern Pygmy Possum (*Cercartetus nanus*)
- Spotted-tailed Quoll (*Dasyurus maculatus*), and
- New Holland Mouse (*Pseudomys novaehollandiae*).

Survey effort has been undertaken for all four species but were not recorded in by *Travers bushfire & ecology*.

<u>Eastern Pygmy Possum</u>

Eastern Pygmy possum has been sighted within the site by Warringah Council therefore this species is potentially impacted by the planning proposal. Consequently the advice of Dr Brad Law is being sort which may lead to undertaking further target survey. Additional survey in an alternate season for Eastern Pygmy Possum and use of more up to date survey methods targeting this species by utilising nesting boxes left for longer periods is prudent.

Southern Brown Bandicoot

The proposed development area provides high quality habitat for the Southern Brown Bandicoot. The species was expected to occur, based on nearby records, in similar habitat to the north, west and south of the proposed development area. OEH has suggested a high degree of trapping effort as the best means of determining presence of this species. The Southern Brown Bandicoot is also known to re-colonise areas of burnt heath during regrowth stages and the Spotted-tailed Quoll has large home ranges.

Recent 2012 cage trapping effort was undertaken extensively throughout the proposed development area for ten (10) consecutive nights for one (1) session. Prior to this, cage trapping effort in 2011 was undertaken less extensively for four (4) consecutive nights. Supplementary survey effort using hair tubes and use of infra-red cameras to acceptable standards have been undertaken as part of recent surveys. To date, Southern Brown Bandicoot has not been recorded present within the site.

Unless this species is recorded in further survey utilising the site it is not expected to be significantly impacted.

Spotted-tailed Quoll

The proposed development area provides obvious suitable habitat for the Spotted-tailed Quoll and utilisation of the site on occasion is expected, based on records, the large home range of the species and preference for a range of habitats. Three (3) records along the urban interface of Belrose and Davidson from 1993 were taken on successive days and may have been the same individual or part of a single study. The species is likely to be utilising the nearby connective habitats given a record to the nearby west in 2009. The unique habitat attributes of the site make it a potential foraging resources and the rocky escarpment, particularly the cave system to the immediate south, may be utilised for denning.

The Spotted-tailed Quoll has not been recorded during targeted trapping effort to date. However, given the species difficulty in capture, and large home ranges, the site may still prove part of this species range. However this species is not likely to be significantly affected by the proposed development. Spotted-tailed Quoll has large home ranges and is recorded in the surrounding locality.

New Holland Mouse

The New Holland Mouse is known to re-colonise areas of burnt heath during regrowth stages and the Spotted-tailed Quoll has large home ranges. New Holland Mouse may be further targeted with terrestrial traps during this effort. Not many records are known of this species in Northern Sydney, however, one (1) record exists to the nearby south west in 2001. Unless this species is recorded utilising the site it is not expected to be significantly impacted.

The proposed development area provides suitable habitat for the New Holland Mouse based on the sandy substrate, presence of heath and high floristic diversity. Not many records are known of this species in Northern Sydney, however, one (1) record exists to the nearby south west in 2001.

This species has not been recorded present during survey undertaken to date. This species should ideally be targeted as part of any additional trapping efforts during an alternate season to effectively rule out presence.

Other Recorded Threatened species

The other recorded threatened species including Powerful Owl, Grey-headed Flying-fox, Eastern Bentwing-bat, Little Bentwing-bat and Little Lorikeet are not considered to be site dependent and will not be adversely affected by the proposed planning scheme.

Powerful Owl *(Ninox strenua)*

The proposed development area provides no suitable breeding hollows for the Powerful Owl. No suitable hollows were observed in the nearby surrounds. The proposed development area also provides unlikely roosting habitat. Powerful Owl may utilise the site for foraging, given the presence of arboreal prey species, however these are present in low density given the low density of available hollow resources.

The Powerful Owl was recorded responding to call playback during 2008 surveys. Call-playback may call owls away from core foraging and roosting areas.

Grey-headed Flying-fox *(Pteropus poliocephalus)*

The proposed development area provides no suitable roosting or breeding habitat for the Grey-headed Flying-fox. A nearby large camp is located at Gordon over 3.5km from the proposed development area and individuals observed during surveys were likely foraging out from this camp site.

The proposed development area provides seasonal foraging opportunity for the Grey-headed Flying-fox (excluding winter) within the low Open Forest areas. Loss of habitat within the development area will reduce foraging resources within the locality however this is not likely to cause a significant impact on this species.

Little Bentwing-bat *(Miniopterus australis)* and Eastern Bentwing-bat *(Miniopterus orianae oceanensis)*

These species are considered here together due to similar habitat requirements.

The Little Bentwing-bat forages below the canopy and the Eastern Bentwing-bat forages above and below the canopy within Open Forests and woodlands, feeding on small insects. The species roosts in a range of habitats including stormwater channels, under bridges, occasionally in buildings, old mines and, in particular, caves (Dwyer 1995). Caves are an important resource for both species, particularly for breeding where maternity caves must have suitable temperature, humidity and physical dimensions to permit breeding (Dwyer 1995).

Both of these species were recorded during recent 2012 surveys by only one or two call sequence (passes) on the Anabat recorder. Neither species were recorded during previous Anabat surveys. This suggests only low use of the proposed development area, which is understandable due to the predominant heath structure within the site.

Whilst suitable caves for roosting and breeding may be present in the surrounding locality, and perhaps the nearby central south of the proposed development area, there are no such opportunities within the proposed development area itself. Therefore development within the proposed development area will impact only on suitable foraging habitat for both species. Such

removal of foraging habitat will not likely result in a significant impact for either of these two species.

Little Lorikeet *(Glossopsitta pusilla)*

Little Lorikeets mostly occur in dry, open eucalypt forests and foraging in small flocks on nectar and pollen in the tree canopy, particularly on profusely flowering eucalypts. Long term investigations indicate that breeding birds are resident from April to December, and even during their non-resident period, they may return to the nest area for short periods if there is some tree flowering in the vicinity (Courtney & Debus 2006).

The proposed development area provides sub-optimal foraging habitat for the Little Lorikeet. This species was recorded during initial surveys in 2008, however the location of the recording was not documented as the species was not listed as threatened at this time. No Little Lorikeets were recorded during 2011 or during recent 2012 surveys over two (2) weeks during the breeding period, suggesting that breeding is not taking place within the proposed development area or nearby. Development within the proposed development area would remove seasonally available foraging resources (excluding winter) however would not be considered likely to significantly impact on this species.

END

Attachment 3

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES

A division of Monvale Pty Ltd ACN 060 653 125
ABN 44 060 653 125

27 June 2013

Ref: 12085

Mr Bob Stewart
Complete Infrastructure Services Pty Ltd
P O Box 1358
Wahroonga NSW 2076

Email: bob@cisnsw.com.au
c.c. Peter Darling (pdarling@payce.com.au)

Dear Bob

Proposed Rezoning For Residential Development
Ralston Avenue, Belrose

I have considered the "Traffic" issues raised by Council and respond in the following:

- **Dot Point 1 Width of Wyatt Avenue**
  I am advised that the section of Wyatt Avenue west of Contentin Avenue can be upgraded within the scope of works for the project.

- **Dot Point 2 Forest Way/Hews Parade Figure 5**
  An amended Figure 5 is attached incorporating the projected additional volumes which are very minor.

- **Dot Point 3 & 4 Road Cross Sections**
  Revised road cross sections and colour coded Road Hierarchy Plan are attached incorporating 8m wide collector road.

  The Traffic Report Section 5.3 P.15 states that traffic management measures will be applied to constrain speeds on the access roads to 40kmph (maximum). Examples of the traffic management measures are provided on the attached extract from AMCORD and this can be dealt with by Consent Condition.

- **Dot Point 5 Shared Pathways**
  As indicated in Section 6 P.17 a shared path will be provided along the collector road and a pedestrian path along the other roads.

- **Dot Point 6 Turning for Service Vehicles**
  For purpose of the Rezoning a Consent Condition should be adequate.

- **Dot Point 7 Cross Section Details**
  The attached new Cross Section diagrams provide the requested details.

- **Dot Point 8 Trees**
  Not a Traffic issue.

- **Dot Point 9 Bike and Shared Path Connections**
  I am advised that footpath, shared path and bicycle path connections to the existing external systems can be incorporated within the scope of works for the project.

- **Dot Point 10 Traffic Generation**
  This is extensively addressed in the report. There is no survey/analysis document to support the 0.85vtph per dwelling. A recent study undertaken for RMS included the results of a survey assessment of 1,335 dwellings at Westleigh with a low "public transport accessibility" score of 6. The recorded peak periods trips were as follows:

	Total Trips	**Trips per Dwelling**
AM	790	0.59
PM	808	0.60

In order to assess the intrinsic traffic generation of dwellings at Belrose surveys have been undertaken of dwellings accessed on Perentie Road by Roar Data Pty Ltd. The results of the survey of the 196 dwellings is attached and the calculated vtph per dwelling are as follows:

	Total Trips	**Trips per Dwelling**
AM	92	0.469
PM	100	0.510

It is apparent that the adopted generation rate in the traffic assessment is entirely appropriate.

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- **Dot Point 11 Pages 13 and 14**
  The assessed operational performance of the Forest Way and Wyatt Avenue intersection is quite satisfactory and there is no requirement for any roadworks. The proposed “seagull” treatment at the Forest Way/Ralston Avenue intersection is indicated on the attached concept diagram.

- **Dot Point 12 Forest Way/Ralston Avenue**
  Noted

- **Dot Point 13 Forest Way/Ralston Avenue**
  It is confirmed that the improvement to the Level of Service “Post Development” is a consequence of the provision of the seagull island treatment.

- **Dot Point 14 Road Width**
  The collector road will be 8m wide to comply with the bush fire requirements

- **Dot Point 15 Bus Route**
  The redirection of buses will be subject to determination by the service provider. However, it is envisaged that the Forest Coach Lines service will be redirected from travelling along Cotentin Road to travel along the entirety of the Ralston Avenue – Wyatt Avenue route from/to Forest Way.

- **Dot Point 16 Terrain**
  Not a Traffic issue.

Yours faithfully

Ross Nettle
Director
Transport and Traffic Planning Associates

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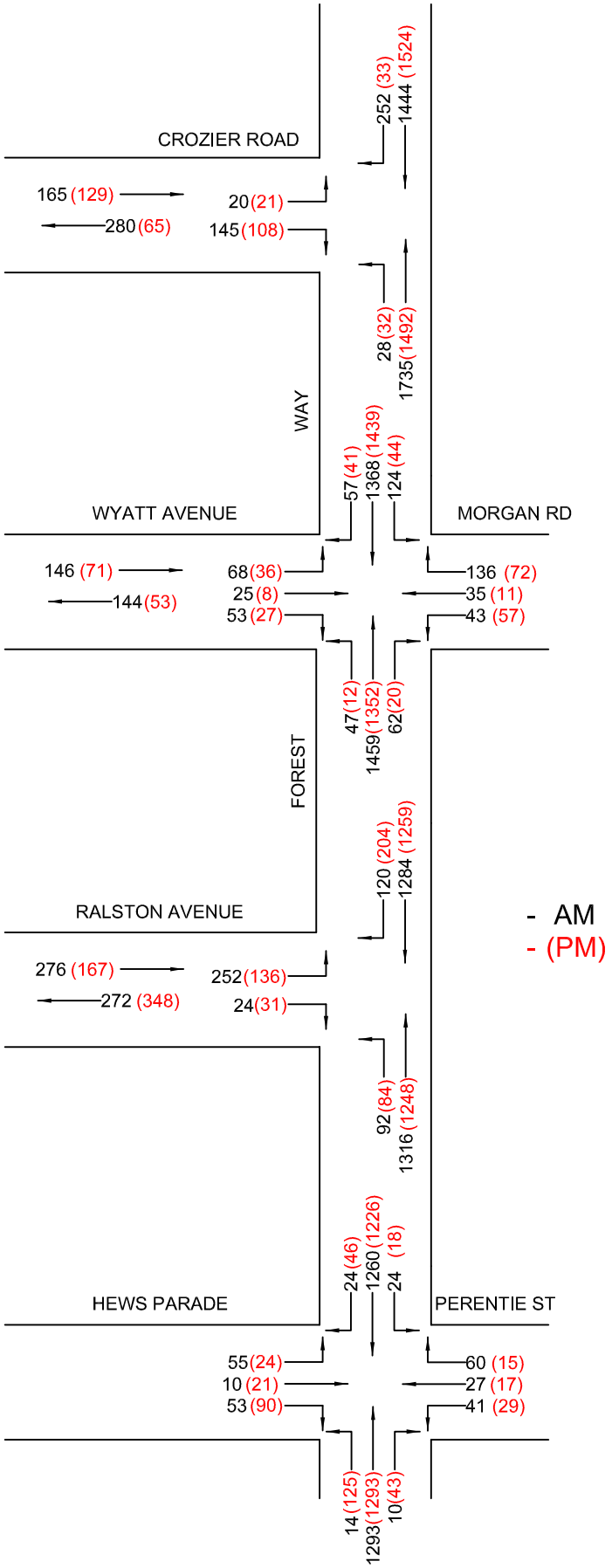
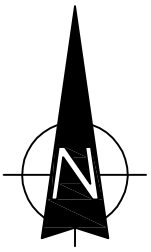
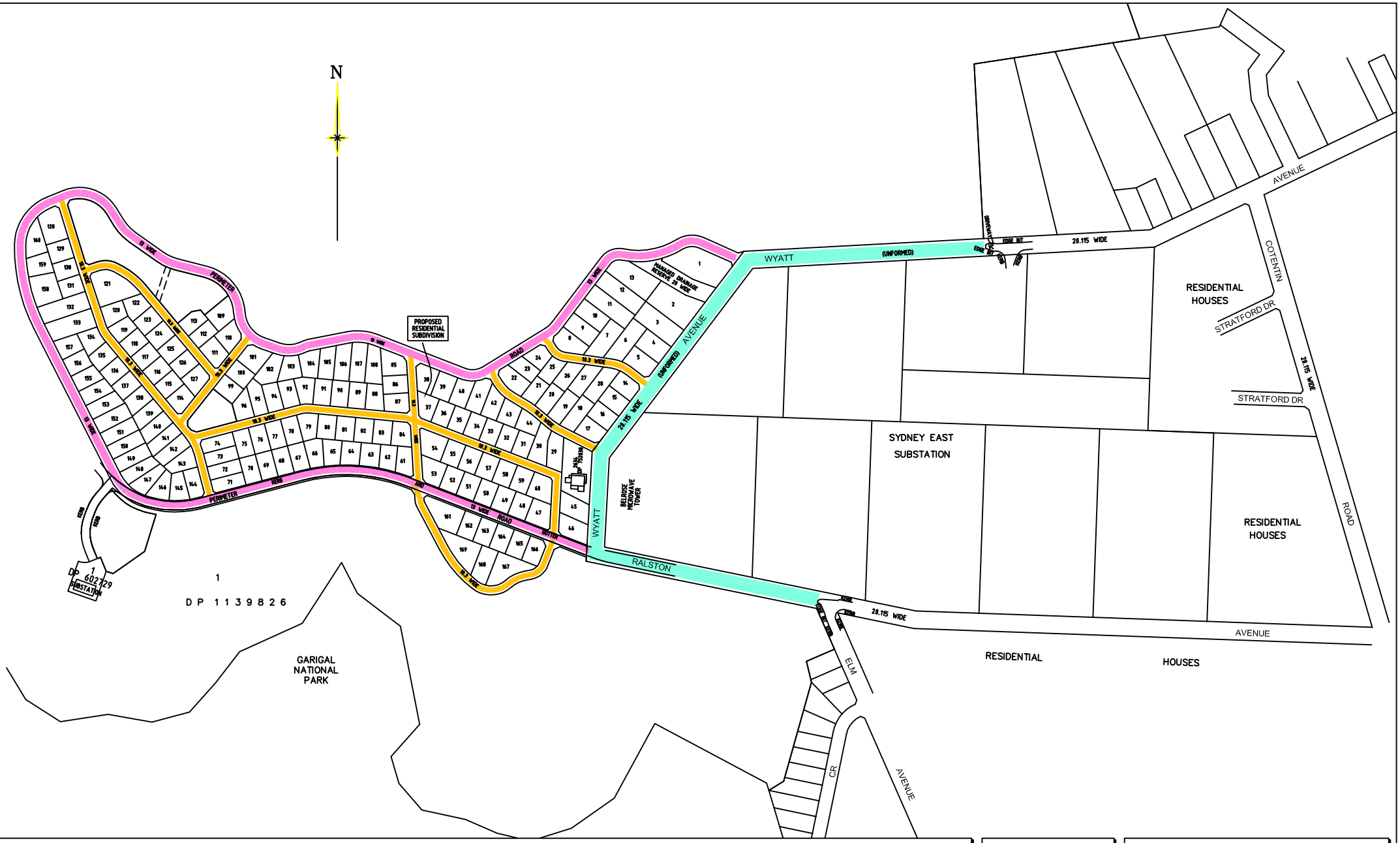


LEGEND



EXISTING PEAK TRAFFIC VOLUMES

FIG 5

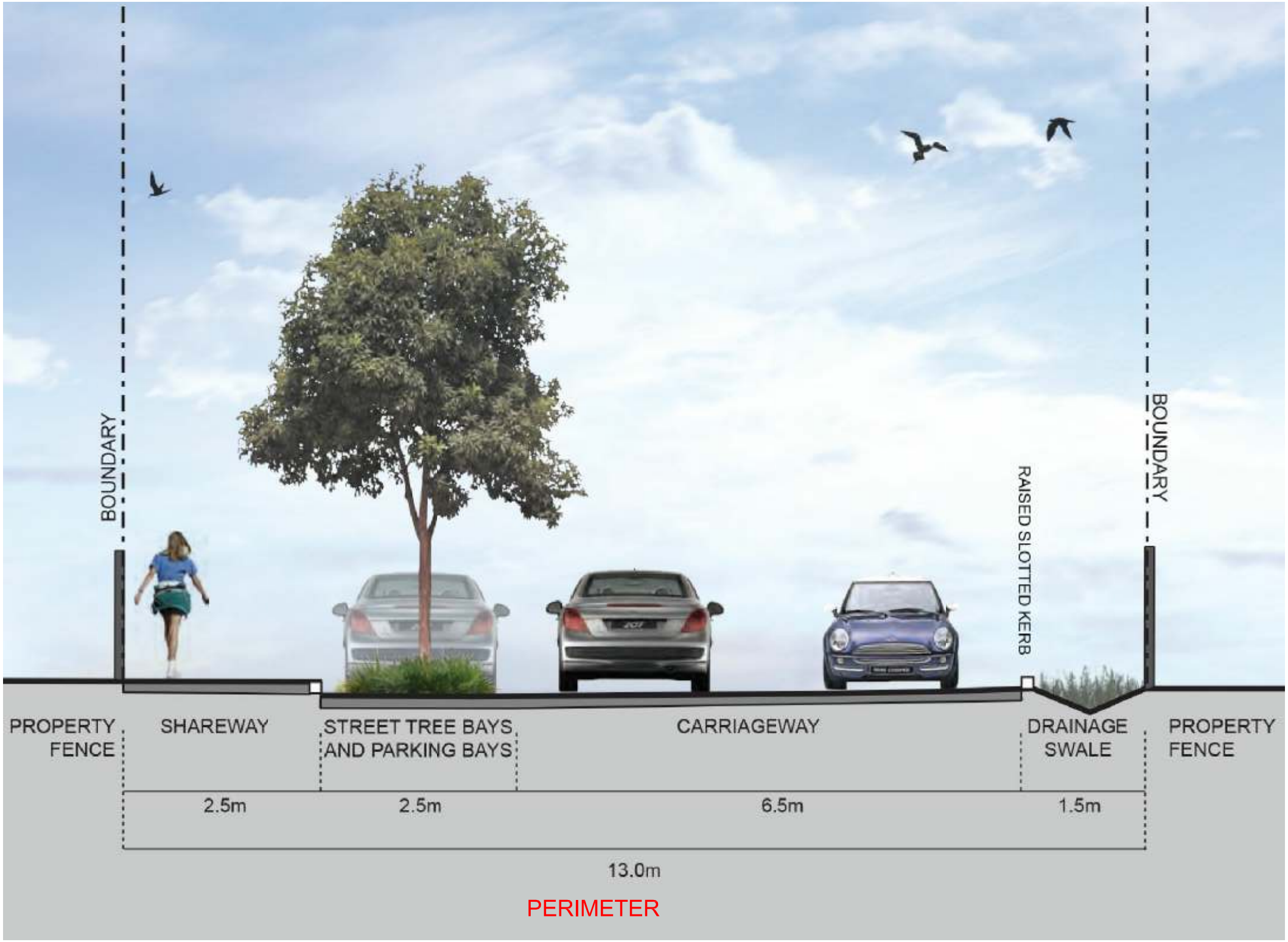


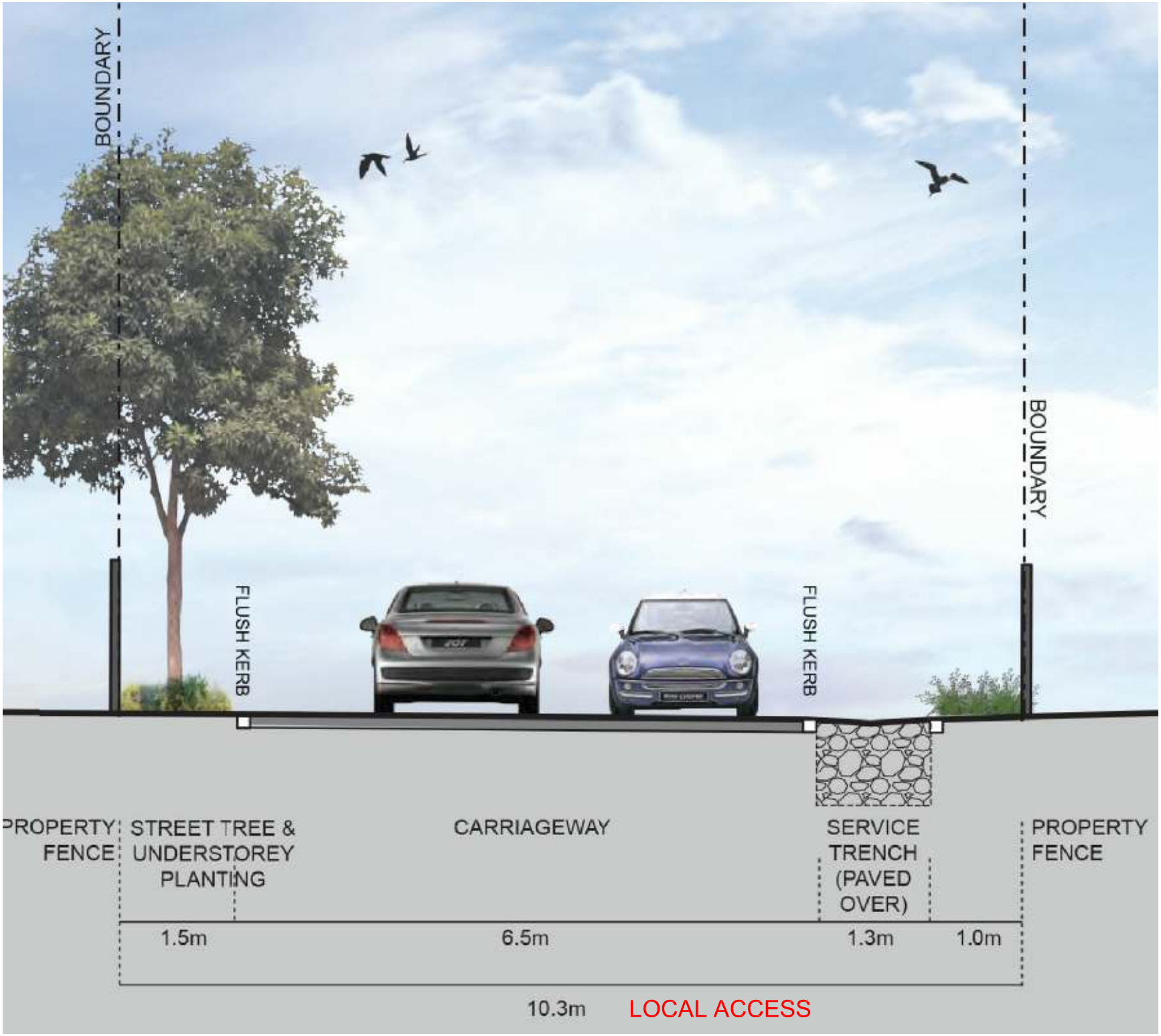
LEGEND

- DISTRIBUTOR/COLLECTOR
- PERIMETER
- LOCAL ACCESS

PROPOSED ROAD HIERARCHY

BOUNDARY
BOUNDARY
BUSHLAND BUFFER
STREET TREE BAYS PARKING BAYS
DUAL CARRIAGEWAY
STREET TREE BAYS STREET PARKWAY
SHAREWAY
PROPERTY FENCE
2.5m
2.5m
7.0m
2.5m
3.0m
2.5m
20.0m
DISTRIBUTOR/COLLECTOR


BOUNDARY
BOUNDARY
RAISED SLOTTED KERB
PROPERTY FENCE
SHAREWAY
STREET TREE BAYS AND PARKING BAYS
CARRIAGEWAY
DRAINAGE SWALE
PROPERTY FENCE
2.5m
2.5m
6.5m
1.5m
13.0m
PERIMETER


BOUNDARY
BOUNDARY
FLUSH KERB
FLUSH KERB
PROPERTY FENCE
STREET TREE & UNDERSTOREY PLANTING
CARRIAGEWAY
SERVICE TRENCH (PAVED OVER)
PROPERTY FENCE
1.5m
6.5m
1.3m
1.0m
10.3m
LOCAL ACCESS

2.5 SPEED CONTROL DEVICES

OBJECTIVE

O1 To safely restrict vehicle speed where necessary at any point in the street to an appropriate limit.

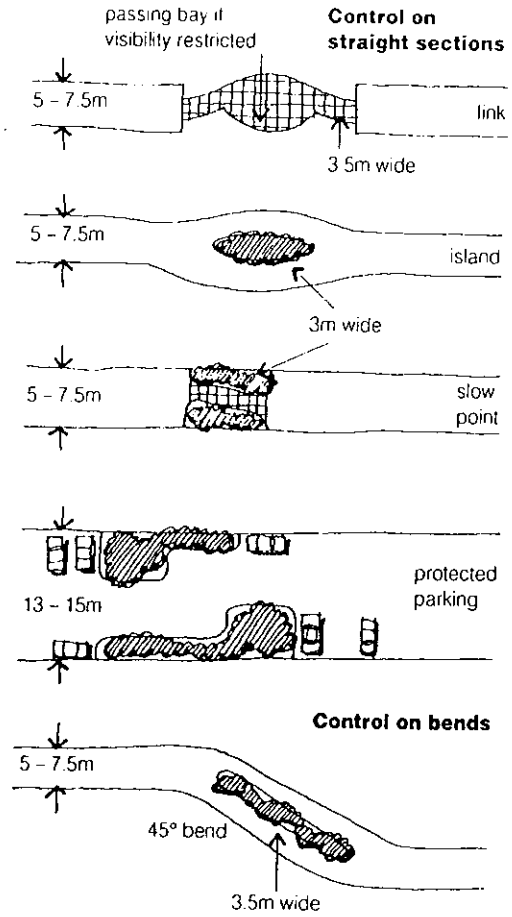
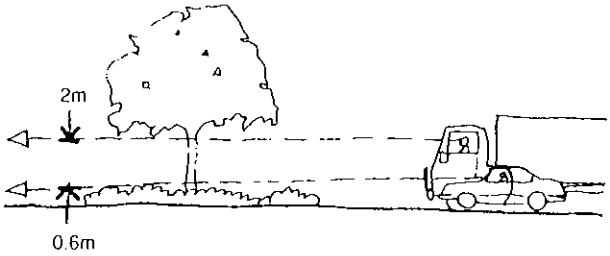


Figure 1: Measures to control vehicle speed in access streets



Planting between 0.6 – 2m high should not restrict the available sight distance to less than 'Y' on streets with frontage access and at roundabouts. ('Y'=req'd stopping distance for designed street speed)

Figure 2: Visibility—see Table 5, Element 2.1

PERFORMANCE APPROACH

The objective may be achieved by application of the performance criteria listed below.

P1 The design and construction of each type of residential street creates a safe street environment.

P2 Line of sight distances required to stop safely are based on the intended speeds for such a street.

P3 Speed reduction devices are provided, where appropriate, in order to achieve the desired speed profile and to be part of a design for the whole street environment.

PROVISIONS APPROACH

Measures

There are no recommended Measures for Element 2.5

Guidelines

G1 Street design and construction should help to reinforce appropriate driver behaviour along particular street sections or at particular points, and ensure that sudden and unexpected changes in driver behaviour do not occur.

G2 Speed reduction devices should be used in order to achieve the desired speed profile in the street and to comply with the distances, deflection angles and minimum sight distances specified in Tables 2, 3, 4 and 5 (Element 2-1).

G3 Where speed reduction devices are part of a design for the total street environment, devices may conform with those in Figure 1.

G3 Where speed reduction devices are used in isolation, additional design requirements may include the need for:

- full horizontal displacement of the vehicle path;
- swept vehicle paths with a 20 m radius;
- constriction to be upon exit rather than on entry;
- additional pavement treatment behind the kerb to be provided for large vehicles;
- line marking; and
- signposting of the devices.

2.1 Street Design 2.4 Street Construction

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : T.T.P.A
Job No/Name : 4681 BELROSE Childs Cct
Day/Date : Thursday 20th June 2013

No. Of Houses around Childs cct = 169 houses

AM

CHILDS Cct — West Access

Time Per	IN	OUT	TOTAL
0630 - 0645	2	4	**6**
0645 - 0700	2	6	**8**
0700 - 0715	1	9	**10**
0715 - 0730	3	6	**9**
0730 - 0745	0	11	**11**
0745 - 0800	2	4	**6**
0800 - 0815	0	11	**11**
0815 - 0830	0	7	**7**
0830 - 0845	3	8	**11**
0845 - 0900	5	12	**17**
0900 - 0915	2	4	**6**
0915 - 0930	4	7	**11**
Period End	**24**	**89**	**113**

CHILDS Cct — East Access

Time Per	IN	OUT	TOTAL
0630 - 0645	1	3	**4**
0645 - 0700	1	4	**5**
0700 - 0715	1	8	**9**
0715 - 0730	1	10	**11**
0730 - 0745	3	8	**11**
0745 - 0800	2	5	**7**
0800 - 0815	2	9	**11**
0815 - 0830	3	9	**12**
0830 - 0845	1	15	**16**
0845 - 0900	2	3	**5**
0900 - 0915	2	9	**11**
0915 - 0930	3	5	**8**
Period End	**22**	**88**	**110**

PM

CHILDS Cct — West Access

Time Per	IN	OUT	TOTAL
1600 - 1615	3	5	**8**
1615 - 1630	6	2	**8**
1630 - 1645	10	4	**14**
1645 - 1700	7	3	**10**
1700 - 1715	10	5	**15**
1715 - 1730	6	2	**8**
1730 - 1745	8	6	**14**
1745 - 1800	10	3	**13**
1800 - 1815	13	3	**16**
1815 - 1830	6	8	**14**
1830 - 1845	7	6	**13**
1845 - 1900	6	6	**12**
Period End	**92**	**53**	**145**

CHILDS Cct — East Access

Time Per	IN	OUT	TOTAL
1600 - 1615	7	7	**14**
1615 - 1630	5	4	**9**
1630 - 1645	6	3	**9**
1645 - 1700	8	4	**12**
1700 - 1715	5	0	**5**
1715 - 1730	8	2	**10**
1730 - 1745	6	2	**8**
1745 - 1800	8	8	**16**
1800 - 1815	3	1	**4**
1815 - 1830	10	2	**12**
1830 - 1845	9	2	**11**
1845 - 1900	6	6	**12**
Period End	**81**	**41**	**122**

AM PEAK HOUR
0800 - 0900

CHILDS Cct — West Access

Peak Per	IN	OUT	TOTAL
0630 - 0730	8	25	**33**
0645 - 0745	6	32	**38**
0700 - 0800	6	30	**36**
0715 - 0815	5	32	**37**
0730 - 0830	2	33	**35**
0745 - 0845	5	30	**35**
0800 - 0900	8	38	**46**
0815 - 0915	10	31	**41**
0830 - 0930	14	31	**45**
PEAK HR	**8**	**38**	**46**

AM PEAK HOUR
0745 - 0845

CHILDS Cct — East Access

Peak Per	IN	OUT	TOTAL
0630 - 0730	4	25	**29**
0645 - 0745	6	30	**36**
0700 - 0800	7	31	**38**
0715 - 0815	8	32	**40**
0730 - 0830	10	31	**41**
0745 - 0845	8	38	**46**
0800 - 0900	8	36	**44**
0815 - 0915	8	36	**44**
0830 - 0930	8	32	**40**
PEAK HR	**8**	**38**	**46**

PM PEAK HOUR
1730 - 1830

CAR PARK — West Access

Peak Per	IN	OUT	TOTAL
1600 - 1700	26	14	**40**
1615 - 1715	33	14	**47**
1630 - 1730	33	14	**47**
1645 - 1745	31	16	**47**
1700 - 1800	34	16	**50**
1715 - 1815	37	14	**51**
1730 - 1830	37	20	**57**
1745 - 1845	36	20	**56**
1800 - 1900	32	23	**55**
PEAK HR	**37**	**20**	**57**

PM PEAK HOUR
1745 - 1845

CAR PARK — East Access

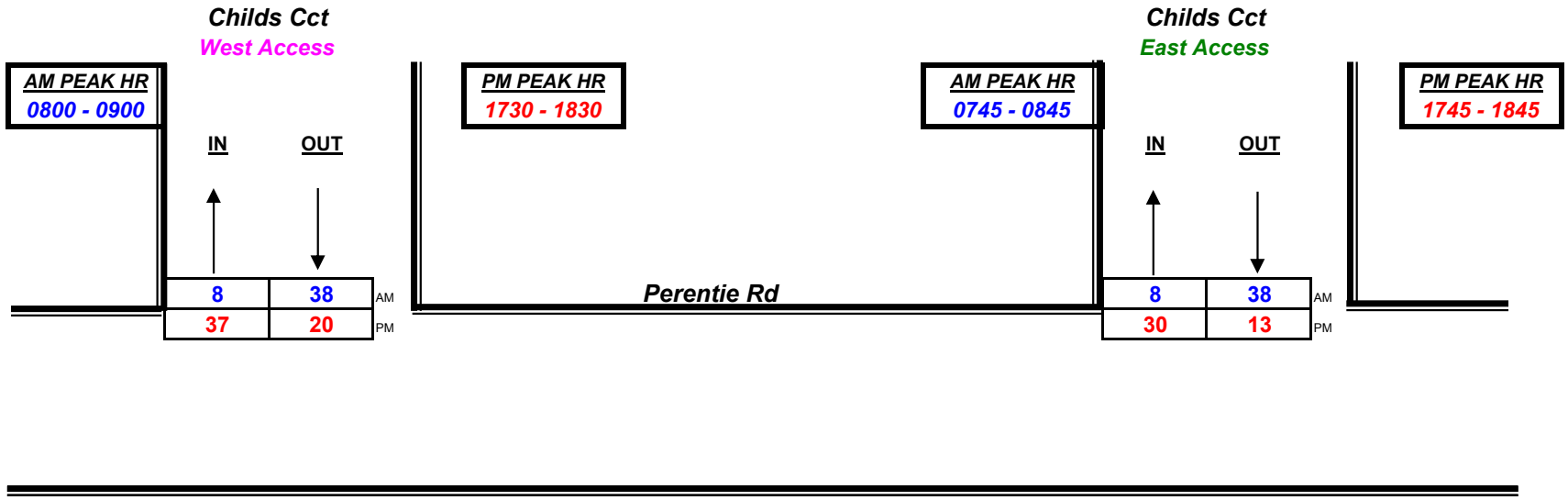
Peak Per	IN	OUT	TOTAL
1600 - 1700	26	18	**44**
1615 - 1715	24	11	**35**
1630 - 1730	27	9	**36**
1645 - 1745	27	8	**35**
1700 - 1800	27	12	**39**
1715 - 1815	25	13	**38**
1730 - 1830	27	13	**40**
1745 - 1845	30	13	**43**
1800 - 1900	28	11	**39**
PEAK HR	**30**	**13**	**43**

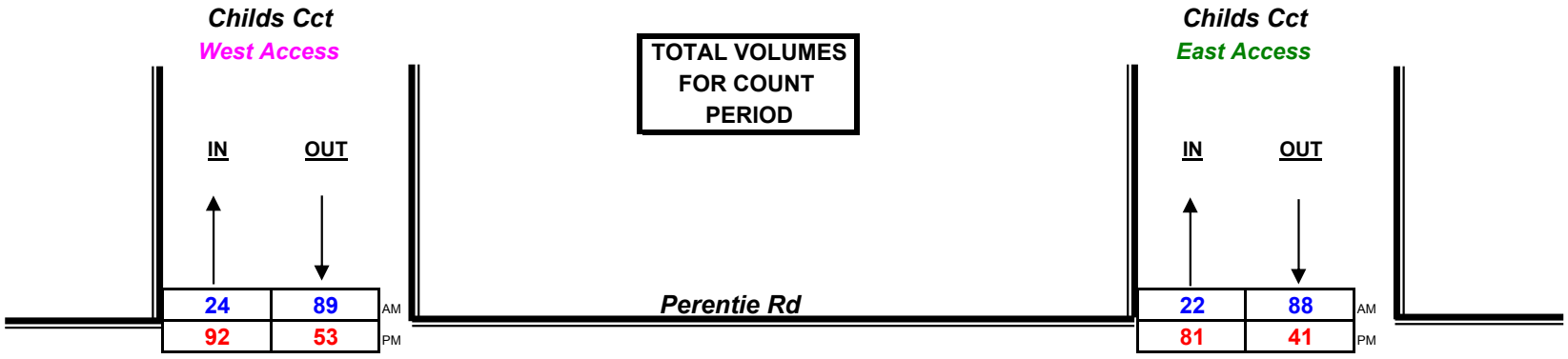
R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : T.T.P.A
Job No/Name 4681 BELROSE Childs CCT
Day/Date : Wednesday 27th May 09





FOREST WAY AND RALSTON AVENUE
PROPOSED SEAGULL ARRANGEMENT

Attachment 4

Executive Summary – Dr Mahoney

In January 2013 a brief was accepted to undertake habitat searches for potential breeding areas of the Giant Burrowing Frog (GBF) at a site at Ralston Avenue Belrose where a planning proposal for a potential residential subdivision was prepared. In earlier fauna studies conducted at the subject site by Travers Bushfire and Ecology a juvenile GBF had been collected in a trap line on the sandstone plateau at the site within the proposed residential subdivision footprint. The objective of the investigation was to address the significance of impact of the proposal on the GBF:

1) whether habitat on the plateau is critical to the survival of the GBF population and which parts of the landscape (subject site = residential zone, and surrounding areas) are likely to be important for breeding;

2) whether there is adequate habitat surrounding the proposed residential zone to support a viable population; and

3) whether the proposal is likely to result in significant restriction of movement or connectivity for the local population.

An assessment of the potential impact of the proposal on the local population of the Red Crowned Toadlet (RCT) which was known from the area was also sought. Advice was also sought on relevant mitigation measures for these two threatened frog species. Habitat assessments at the subject site were conducted in February 2013.

• The outcome of habitat assessment was that there was no identified breeding habitat for the GBF within the subdivision boundary with the possible exception of a small drainage line on the north eastern edge of the subdivision boundary.

• Several breeding locations for the RCT were detected with only one on the plateau and two near seepage on the north-east of the subdivision zone.

•It was concluded that the potential significance of impact of the proposal on both threatened frog populations is not from direct removal of breeding habitat on the sandstone plateau, but possibly from the removal of sheltering (burrowing) and foraging habitat of the GBF and RCT. The potential for indirect impact by alteration to hydrology of habitats outside the subject site was noted.

• Following the habitat assessment it was concluded that there was adequate habitat outside the proposed residential zone to support a viable population of the GBF and RCT, but this needed to be confirmed by targeted surveys.

•The potential for the residential zone to disrupt movement corridors for the GBF were assessed and without specific information on the breeding, shelter and foraging habitats the significance of potential corridors was unknown and targeted surveys were recommended.

Following the recommendations from the habitat assessment targeted surveys were conducted to identify likely breeding areas of the GBF including tadpole searches and shelter locations, and to expand on the knowledge of the habitat used by the RCT. Targeted surveys were conducted in the period April to June 2013, and coincided with several significant rainfall events which are known to trigger amphibian activity.

• One breeding site was identified for the GBF. This site is in the valley to the north of the plateau and greater than 300 m from the subject site boundary. Intensive and extensive surveys of semi-permanent and permanent pools in drainage lines emanating from the plateau were undertaken and no other breeding location was found. The seasonal and climatic conditions at the time of the survey were ideal for detection of the GBF.

• No adults or juveniles GBF were detected in habitat considered to be suitable for burrowing or foraging. It is concluded that the density of GBF at the site is low, and that it is most unlikely that habitats on the plateau are used routinely for shelter and foraging. Furthermore, it is not likely that development with break a corridor that connects breeding habitat with foraging and shelter sites since there are no identified breeding sites close to the plateau.

• The considerable distance of the identified breeding habitat from the plateau and the relatively large area of surrounding habitat indicate that indirect impacts on hydrology are unlikely to impact on the GBF breeding habitat.

• In conclusion it is not likely that the proposal will impact on the local viable population of the GBF.

• There is no need for the placement of buffer zones around habitat on the escarpment since there are no identified breeding, sheltering or foraging habitat.

• Additional breeding habitats of the RCT were detected in targeted surveys and the local population occurs along most of the semi-permanent drainages and soaks that occur near the escarpment and down slope from the plateau. This confirmed the habitat assessment that with the exception of one site on the western end of the plateau (human made pit) and the rock face seepage in the north-east that the majority of the breeding sites will not be directly impacted by the proposed development.

• The assessment concludes that movement of the RCT will mostly be in the escarpment and mid-slope areas and development of the plateau will not have a significant effect on the local population due to the removal of habitat or the breaking of corridors.

• The potential for impact on the population of the RCT is assessed to be related mostly to indirect impacts on the hydrology of the breeding habitat (rate, volume, and water quality of discharge). Specific mitigation measures are required to ensure that the hydrology of these sites is not altered by the proposal.

Attachment 5

Warren Smith & Partners

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24th June 2013

Project No. 4063001

Warringah Council
c/o Complete Infrastructure Services Pty Ltd
PO Box 1358
WAHROONGA NSW 2076

Attention: Mr Bob Stewart

Dear Bob,

RE: PROPOSED DEVELOPMENT AT RALSTON AVENUE, BELROSE
WATER MANAGEMENT ISSUES

Reference is made to Warringah Council's letter of 12th June 2013, reference *PEX2013/0003 Appendix D – Infrastructure Services and Water Management.*

We respond to Council's comments as follows:-

Item 1
CIS to address community title issues.

Item 2
WS&P's documentation shall be updated to indicate the existing natural watercourses. Survey is currently being undertaken and revised drawings will be issued once this is completed.

Item 3
Reference is made to WS&P's Infrastructure Services Strategy Concept Design Report, Revision E, dated 23rd November 2012, which addresses flood mitigation from the proposed roads and footpaths, extracts of which are provided below.

The basis for the design of the OSD system is as follows:-

On-Site Detention (OSD) will be provided in accordance with Warringah Council's 'On-site Stormwater Detention Technical Specification, September 2007' namely:-

- Post-development runoff to be restricted to State of Nature flow rates for the 1 in 5, 20 and 100 Year ARI Storms;
- OSD Tanks to be designed to contain the 1 in 5 Year ARI Storm if the overland flow path does not pass through downstream properties;
- OSD Tanks to be designed to contain the 1 in 100 Year ARI Storm if the overland flow path does pass through downstream properties;
- Pipe flow from the site is not to exceed the 1 in 5 Year ARI State of Nature flow rate.

OSD is proposed to be provided both in lots and in the road network:-

The development of each sub-divided lot will include the installation of a rainwater and OSD tank. Additional OSD will be required to be provided for the road network. It is expected that this storage will be incorporated into the Bio-Retention Swale system.

CIS to provide comment on the ownership and maintenance of the OSD and water quality infrastructure.

Item 4

As per Item 3, it is proposed that the development will restrict post-development flows to a State of Nature scenario for a range of storms, up to and including the 1 in 100 year ARI event. A 'DRAINS' model will be undertaken at DA stage to demonstrate that appropriate OSD systems will be provided to ensure that additional flows from impervious services will be detained on site. This will ensure that there will be no additional flows from the proposed development which would affect the capacity of the existing creeks.

Item 5

Please find an extract below from WS&P's report which addresses concerns in relation to downstream environments being affected by water quality:-

The following Best Practice Guidelines will be incorporated into the design in order to mitigate against an adverse effect on the surrounding environment due to the development:-

- 90% reduction in the average annual gross pollutant load;
- 85% reduction in the average annual Suspended Solids load;
- 65% reduction in the average annual total Phosphorus load;
- 45% reduction in the average annual total Nitrogen load.

The development will be modelled to demonstrate the performance of the stormwater treatment system utilising a program called MUSIC (Model for Urban Stormwater Improvements Conceptualisation). MUSIC can model the proposed stormwater treatment devices and estimate their respective performance against the performance targets of the project. A preliminary model has been set up which demonstrates that the measure outlined previously results in best practice targets being exceeded as is illustrated in Table 5.4.

Connection	Sources	Residual Load	Reduction (%)	Best Practice Reduction (%)
Flow (ML/yr)	108.00	107.00	0.9	-
Total Suspended Solids (kg/yr)	20000	898	95.5	85.0
Total Phosphorous (kg/yr)	42.80	8.54	80.0	65.0
Total Nitrogen (kg/yr)	293.0	144.0	50.9	45.0
Gross Pollutants (kg/yr)	2360.0	0.0	100.0	90.0

Table 5.4 MUSIC Model Results

A MUSIC model of the existing catchment may also be provided, if required, to estimate the water quality currently being received by the downstream environments. The proposed development can be modelled to ensure that both the above water quality targets are being met, as well as ensuring that no additional pollutants

loads are being generated from what is currently occurring.

Bob, we trust the foregoing is of assistance and should any clarification be required please contact the undersigned.

Yours faithfully,

Michael Cahalane
Associate, Senior Civil Engineer
WARREN SMITH AND PARTNERS PTY LIMITED

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