

Date: 9th July 2019
Our Ref: 14/351

Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Ms Michelle Niles – Senior Planner (Regional Assessments)

Dear Madam,

Re: MP07_0026 – Epiq Estate Lennox Head (Mod 7)

Newton Denny Chapelle (NDC) has been instructed by Clarence Property Pty Ltd to respond to the government agency submissions received for the proposed Modification to MO07_0026, relating to Lot 5 DP 1239938 within the Epiq Estate Lennox Head.

Government Agency Submissions

Five (5) submissions were received from Government Agencies during the notification period for Modification 7 (Mod 7). Submissions were received from the following government agencies.

- Ballina Shire Council;
- Office of Environment & Heritage;
- Roads & Maritime Service;
- Department of Primary Industries; and
- Transport for NSW.

In reviewing the suite of comments received within the government agency submissions, regard was made to the key issue being associated with the perimeter road and the subsequent integrated issues which were also associated with this point. As Ballina Shire Council will be the consent authority for the future dwellings, it was deemed to be prudent to address this issue directly with Ballina Shire Council. Furthermore, the primary issues raised by other government agencies revolved around the same points initiated by Council.

Through a series of meetings coordinated with Ballina Shire Council to discuss the issues raised and the subsequent completion of further technical work and modifications to the proposed development, Council has identified subject to the design changes made and suitable conditions being imposed by the Department of Planning and Environment, Council does not object to the proposed modification. A copy of Council's letter responding to the latest design as included within this submission is provided within this documentation.

To assist the Department of Planning & Environment in reviewing our response to the submissions, the matters raised by the listed agencies are outlined within **Table 1** below, together with the proponent's response.

Furthermore, the following technical information and correspondence is also included within this response package for inclusion within the Departments assessment.

- **Attachment 1** – Ecological Response (GeoLINK)
- **Attachment 2** – Modified Subdivision layout and civil design package
- **Attachment 3** – Ballina Shire Council Letter 28 June 2019
- **Attachment 4** – Bushfire Assessment Report (Bushfire Certifiers)
- **Attachment 5** – Updated Design Specification (TVS Architects)

Table 1: Government Agency Submissions & Project Response

Government Agency	Agency Comments	Proponent Response
Ballina Shire Council	1. Perimeter Road (Council access and maintenance)	<p>It is acknowledged that the proposed layout does not include a 20 m buffer and therefore does not comply with the requirements of the approved Environmental Management Plan (EMP) and Condition B10 of the Concept Approval. Section 6.1.1 of the EMP states that a 20m buffer be applied to retained areas of freshwater wetland within the Conservation Zone, not a 20 m buffer to the entire Conservation Zone. Mapping of the freshwater wetland was last undertaken in 2018 and is provided in the ecological response to Ballina Shire Council's submission within Attachment 1 of this letter.</p> <p>The intent of any buffer is to minimise negative impacts upon sensitive receiving areas. In this case, protection of the Freshwater Wetland EEC within the Conservation Management Zone (CMZ) which also contains threatened Square-stemmed Spike-rush (SSSR) and Hairy Joint Grass (HJG) is required. Reference is made to the fact the 20m buffer as contained under the existing Concept Plan Approval provides for the construction of a local access road upon Super Lot 5 which was to service the previously approved aged care housing designation for SL5. In this respect, the buffer did not comprise of a 20m landscaped buffer.</p> <p>A proposed track within a 5m-8m reserve plus a no build zone has been incorporated into the current design. The 5m buffer will comprise a 3m wide gravel access track (with localised widenings) and 2 m wide vegetated strip (refer Attachment 2). The proposed track would have less nutrient runoff than a local access perimeter road. In this respect, the intent of the 20m buffer would be met through the ability to achieve the Epiq Estate stormwater management plan through the building setback & 5-8m reserve area which equates to a minimum 10m buffer. Further reference to commentary on the stormwater management for the project is provided under Point 4 of this letter.</p> <p>Regard is also made to crime prevention and the design of the proposed perimeter maintenance access. In this respect, the track will have lockable bollards erected at each end where the track connects to the public road network. Further, an option also exists to incorporate a fence and gate at the road frontage to provide further access restrictions is deemed appropriate by Council. This measure will clearly delineate access and use of the track is not for public access. Furthermore, the utilisation of a gravel finish discourages the use of the access track for skateboards or scooters which may occur with a concrete surface, thereby reducing the attraction for children to utilise the track.</p>

		<p>With respect to surveillance, the adjoining residential housing will have the primary open space orientated to the CMZ and as such to the track. The elevated position of the open space and housing permits view lines over the CMZ. This position is illustrated in the plans provided within Attachment 2, whereby the elevation of the dwelling and the associated fencing which due to its permeability permits a view line from the residential property of the track and CMZ. Importantly, natural surveillance is also offered from residents residing within housing located in Release 5 who will have their view from the elevated ridge westwards over the CMZ and the access track alignment.</p> <p>We submit the proposed access track satisfies many of requirements of a perimeter road such as:</p> <ul style="list-style-type: none"> • providing Ballina Shire Council access for the full interface between the subject land and the CMZ for maintenance purposes; • minimises private property adjoining the conservation zone and the potential to extend residential footprints; • reduces potential for garden escapees; • reduces illegal dumping of rubbish and green waste given the design of the track which improves the visibility and delineation of the private land/public land interface; and • preserves the ability for the estate to satisfy the underlying approved stormwater management plan for Epiq Lennox.
	2. Outstanding Restoration Works and Bushfire Assessment	<p>Upon approval from Commonwealth Department of Environment and Energy (DoEE) for additional infill plantings within the conservation zone, revisions may be made to areas of proposed revegetation to ensure that adequate setbacks for bushfire are met and APZs can be achieved. This point has been addressed with Ballina Shire Council with no objections raised (refer to Council letter dated 28 June 2019 within Attachment 3).</p> <p>GeoLINK propose to modify the approved Conservation Zone Management Plan to include planting of rainforest species within the north-western corner of the central conservation zone adjacent to Super Lot 5. The area is currently grassland.</p> <p>The aim of infill plantings is to establish rainforest in areas that are not suitable as freshwater wetland or threatened Hairy Joint Grass (HJG) habitat to reduce weed control efforts in the long term. Establishing rainforest may also provide surrogate HJG habitat along edges and ecotones.</p> <p>Previous recommendations (to undertake infill plantings within the conservation zone) have been approved in principle by the client, OEH and Ballina Shire Council. However, the Federal Department of Environment and Energy (DoEE) has not yet provided support for any proposed infill plantings. If DoEE or the NSW Rural Fire Service do not approve of the proposed rainforest planting, this area will remain as grassland.</p>

	<p>A revised Bushfire Assessment (Attachment 4) has been prepared having due regard to the scenario of the CMZ area located adjoining the south-western corner of SL5 not being maintained and remaining grassland. The 10m setback for proposed residential housing to the bushfire hazard consists of a variable width asset protection zone within the rear boundaries of the proposed residential lot and the 5-8m wide access track for Ballina Shire Council consisting of a gravel access path and managed shoulders. The access and shoulders is not considered under the bushfire assessment as a hazard under the PBP 2006.</p> <p>In this regard, the proposed 10m managed land buffer for the building envelopes has been determined to be adequate for compliance with Table A2.5 PBP 2006.</p>
3. Mosquito Risk	<p>As indicated above, if approval from DoEE is obtained for additional infill plantings within the conservation zone, areas of proposed revegetation can be modified to ensure that these are set back the prescribed 25m from the proposed development to satisfy mosquito requirements if deemed necessary by Ballina shire Council and the Department of planning & Environment.</p>
4. Potential impacts of filling on the Hydrology of the Conservation Zone	<p>The Revised Stormwater Assessment & Management Plan, Pacific Pines Estate, prepared by Gilbert and Sutherland, (July 2014) was approved by BSC on 6 August 2014.</p> <p>This Plan outlines the philosophy for stormwater management across the greater Epiq Estate. The majority of stormwater generated by the development is to be discharged to the Water Quality Control Pond (WQCP) which is located to the west of Montwood Drive. Water generated by the development to the east of Montwood Drive is to be discharged to the Conservation Management Zone (CMZ) from which it passes through the existing box culverts installed under Montwood Drive.</p> <p>All previous stages of the Epiq Estate have been designed and constructed generally in accordance with this Plan. It is noted that several gross pollutant traps (GPT's) in addition to those identified in the Plan, have been installed as part of previous stages. These devices will improve the quality of the water entering the Conservation Zone and also remove devices previously proposed within the zone.</p> <p>The proposed Super Lot 5 development has been redesigned to provide an access track around the perimeter of the site. This track will be constructed 3m wide in accordance with BSC standards. Energy dissipators have been provided outside the CMZ as required by Council and are detailed on the attached engineering plan 14351-S5-SK-DR-01-B. An additional drain has been proposed adjacent to the west side of Montwood Drive to address Council's concerns regarding the drainage of low lying areas of the CMZ. The location and configuration of this drain has been developed in consultation with Ballina Shire Council.</p>

	5. Site Access	Left in / Left out entry onto Montwood Drive is now proposed. Pursuant to Ballina Shire Council's letter of 28 June 2019 contained within Attachment 3 , the proposal provides a central island in Montwood Drive to prevent right turn movements and restrict access to left in / left out only.
	6. Stormwater Conveyance – Points of Discharge	Reference is made to the response provided for Point 4
	7. Stormwater Conveyance – Overland Flow Path	As suggested by Ballina Shire Council the issues raised regarding overland flow paths have been overcome by providing perimeter access around Super Lot 5 and dedicating the nominated drainage easements.
	8. Proposed Park	We submit the placement of a park for the residents contains sufficient merit to retain the designated open space area. The park would provide a passive area within the development, whilst acknowledging the close proximity to the sports fields, and open space in Release 3. Notwithstanding this, design issues raised by Council have been addressed by switching the majority of the car parking from the eastern side to the west of the park and the park adopting a more regular configuration which will also assist with maintenance. Ballina Shire Council has reviewed the modified design in preparing their advice contained within Attachment 3 .
	9. Staging	We concur a separate set of conditions should be provided for each Super Lot (i.e.. Super Lots 5 & 7). We raise no objection to the conditions for Modification 6 and Modification 7 being contained in separate stages under the project approval in the same manner as completed for Stages 1C and 1D, as these developments will not be undertaken at the same time.
	10. Conditions	Should conditions from the original approval be reapplied, no objections are raised to ensure the conditions refer to current legislation, standards and practices.
Department of Environment & Heritage	1. Impacts on Conservation Zone Management	<p>The project team have discussed revising the proposed layout of Super Lot 5 and propose to include a vehicular access track to separate residential lots from the CMZ in lieu of a perimeter road. The access track will satisfy OEH concerns regarding access to the CMZ for firefighting as well as personnel/ contractors responsible for implementing weed control, revegetation and rehabilitation. Access is also available from the southern and western sides of the CMZ.</p> <p>We highlight Ballina Shire Council's acceptance of the revised subdivision layout with no perimeter road, however incorporating the maintenance access driveway. Reference is made to the correspondence provided within Attachment 2. In this regard, Council has stated;</p> <p><i>As indicated in our submission to NSW Planning and Environment, it is Council's preference for the subdivision layout to incorporate a perimeter road between Super Lot 5 and the conservation management zone. Notwithstanding this, it is accepted that reasonable environmental outcomes can still be achieved through your proposed subdivision design.</i></p>

		<p><i>Subject to the above design changes and suitable conditions being imposed by the Department of Planning and Environment, Council does not object to the proposed modification.</i></p>
	2. Indirect Impacts on Biodiversity	<p>OEH states that potential indirect biodiversity impacts not considered in the ecological assessment report may arise from the following sources:</p> <p><i>a) Elevated nutrient and pollution levels derived from uncontrolled and untreated stormwater runoff from the backyards of 33 proposed residential lots adjoining and draining directly into the conservation zone;</i></p> <p>Higher nutrient and pollution levels are likely per square metre from an impermeable perimeter road than from private backyards. As indicated above however, a narrower access track with vegetated strip is now proposed which will satisfy this concern. The development is also able to still satisfy the Stormwater Assessment & Management Plan, Pacific Pines Estate, prepared by Gilbert and Sutherland, (July 2014) previously approved by BSC on 6 August 2014.</p> <p><i>b) Weed infestations caused or exacerbated by future potential unlawful dumping of garden waste generated in the backyards of 33 residential lots proposed to adjoin the conservation zone;</i></p> <p>The proposed access track will negate this concern as Council will access this area for maintenance. Importantly, the permeable fencing at the rear of the proposed lots which share a boundary to the public reserve, combined with opportunities for natural surveillance achieved to the proposed lots from Release 5 shall provide a recognised deterrent for any future landowner seeking to unlawfully dump garden waste.</p> <p>Education and signage should also be encouraged.</p> <p><i>c) Gradual informal expansion and encroachment of residential backyards [e.g. manicured lawns] of proposed adjoining residential into the conservation zone; and</i></p> <p>The proposed access track design and elevated nature of the residential lots will negate this concern. The proposed access reserve will include an access track and vegetated strip plus a retaining wall which will physically prevent extension of privately manicured lawns. Regard should be made to the design plans provided within Attachment 2 of this submission.</p> <p><i>d) Proliferation of informal walking paths emanating from the backyards of proposed adjoining residential lots into the conservation zone.</i></p> <p>The design of the proposed access maintenance track and interface with the residential lots will negate this concern. The 5m reserve area will include a gravel surface, thereby discouraging recreational scooters/skateboards etc from utilising this area. Reference is also made to the pedestrian pathway network which services both the subject land and Epiq Estate provides a more direct route to the key</p>

		<p>destinations (i.e. shopping centre, bus network, sporting fields) for residents than would otherwise be achieved through attempting to access the CMZ from the rear yards.</p> <p>Furthermore, the planned retaining wall will physically prevent informal walking paths emanating from private backyards.</p> <p>OEH Recommendation 2</p> <p>Recommendation 1 has not been fully adopted therefore the above information is provided to address indirect impacts of the proposed modification.</p> <p>If the approach is supported, the ecological assessment can be updated to include five-part tests in accordance with section 7.3 of the Biodiversity Conservation Act 2016 for HJG, SSSR, Swamp Oak Floodplain Forest and Freshwater Wetland EEC.</p> <p>Reference is made to the response prepared by GeoLINK prepared Attachment 1 of this submission.</p>
	3. Stormwater Impacts on Management of Threatened Entities	<p>The proposed stormwater management design is in accordance with the approved masterplan for the site. Stormwater runoff is treated within the Water Quality Control Pond with no objections raised by Ballina Shire Council.</p> <p>Reference is made to the response prepared by GeoLINK prepared Attachment 1 of this submission.</p>
NSW Rural Fire Service		<p>Reference is made to the revised Bushfire Report provided within Attachment 4 of this submission. The assessment has been prepared having regard to the modified layout which has been amended to accord with Ballina Shire Council's comments as addressed earlier in this submission.</p> <p>With respect to the NSW RFS identifying the need for a perimeter road, we note the bushfire consultant undertook a pre-lodgement brief with the NSW RFS with specific regard to the modified layout not including a perimeter road. The NSW RFS has provided a supplementary comment on 15 January advising details of the brief submitted to the NSW RFS proposed no perimeter road and confirm that this was reviewed by the RFS and accepted.</p>
Transport for NSW (Note: same comments provided for Mod 6)	<ul style="list-style-type: none"> Analysis on how public transport demand will be affected by population change from the development and how it will be managed. Documentation 	<ul style="list-style-type: none"> Reference is made to the traffic assessment provided within the Modification Proposal. In this regard, the modification does not seek to modify the approved road standard, footpath network and public transport accessibility already approved for the Epiq Estate as the modifications themselves do not significantly alter the population for the estate. In this regard, the Engineering Services Report addresses the road network based on traffic volumes generated by the development which have been supported by Ballina Shire Council based on the adoption of the recommendations nominated by Council in letter dated 28 June 2019.

	<p>demonstrating local bus operator (Blanch's) has been consulted surrounding future bus routes and to ensure bus capable infrastructure will be provided.</p> <ul style="list-style-type: none"> • Pedestrian facilities should include links to public transport and address: <ul style="list-style-type: none"> ○ DDA compliance, i.e, footpaths should be 1.8m wide minimum near retail facilities to meet Austroads guidelines for wheelchair accessibility. ○ The 1.8m standard be provided to connect to the existing footpaths at the boundaries of the site and continuous footpaths are provided to existing and planned bus stops. • The proponent is proposing to provide 1.3m wide footpaths on one side of the road only. With the increase in density, TfNSW supports footpaths on both sides of the road around mixed use and retail facilities. 	<ul style="list-style-type: none"> • The Concept Plan for the Epiq Estate has been approved under the Major Project with designated bus routes and associated bus bays. The current proposed modification does not alter the accessibility to these bus bays, nor impact the accessibility for buses to service the Estate. • Blanch Bus services currently services Lennox Head via North Creek Road (Service 641). The proposed modification does not alter or restrict the ability for a bus service to access the Epiq Estate. With respect to the population of the estate, the modification does not significantly alter the current population yield for Super Lot 5, hence no impact on the demand or capacity of the bus service will result in this instance. • Pedestrian access from the proposed land uses on Super Lot 5 will be DDA compliant. This proposal does not modify the site grades in a manner which impacts the future ability for pedestrian access from the subject site to the already approved bus set down within the Estate. In this regard, the subdivision will connect to the approved and already constructed footpath network which was developed in earlier stages of the Epiq Estate. Reference is made to approved Concept Plan (Plan C6) which demonstrates the approved pedestrian/cycleway for the Estate. • As illustrated for Mod 6, a 1.8m footpath is now proposed along the western side of Road 1 and Road 4 in Super Lot 7 in front of the live/work lots. Dual footpaths are not proposed along Road 1 as the 2.5m footpath to the east of the larger commercial lots is considered to provide pedestrian access to the sites. Dual footpaths along the front of the live/work lots along Road 4 are not proposed as the road only has a single frontage in this location
Department of Industry	The Department has advised it has no comments	No response required.

The proponent has consulted with Ballina Shire Council to address the suite of issues raised within their submission dated 9 November 2018. As a result of the consultation and supply of additional information to Ballina Shire Council, the proponent has received correspondence from Council within letter dated 28 June 2019 stating:

The information provided generally addresses Council's previous concerns in relation to this proposed modification. Accordingly, Council raises no objection to this modification as depicted in Plan of Drainage Works (Drawing No. 14351-S5-SK-DR-01 Rev B – dated 28.03.19) prepared by Newton Denny Chapelle, subject to suitable conditions being imposed by the Department of Planning and Environment and the following design changes being made prior to the issue of any approval.

- *The proposed gravel access track around the southern and eastern perimeter of Super Lot 5 being increased to 3m in width with an additional 0.5m clearance on each side to facilitate access for maintenance vehicles.*
- *Provision of a central island in Montwood Drive to prevent right turn movements and restrict access to left in / left out only.*

Subject to the above design changes and suitable conditions being imposed by the Department of Planning and Environment, Council does not object to the proposed modification.

A copy of the plan referenced in Council's letter is provided within **Attachment 3**.

Reference is made to the fact Drawing No. 14351-S5-SK-DR-01 Rev B has been updated to Rev C to incorporate the above recommendations of Ballina Shire Council and is provided within the design package contained within **Attachment 2** of this submission. The project design guidelines which also form part of the Modification have been updated to address the interface with the CMZ and associated APZ provisions (refer **Attachment 5**).

We trust this response to submissions is the necessary information required for the Department to finalise the assessment of this Section 75W Modification to MP07_0026. However, should you have any questions regarding this matter, please do not hesitate contacting Damian Chapelle of this office.

Yours sincerely,
NEWTON DENNY CHAPELLE



DAMIAN CHAPELLE
Town Planner. BTP. CPP.

1 July 2019
Ref No.: 1675-1590

The General Manager
Ballina Shire Council
PO Box 450
BALLINA NSW 2478

Attention: Ms Michelle Niles

Dear Ms Niles

Re: Epiq Lennox MP 07_0026 MOD 7 Super Lot 5

In regard to comments by Ballina Shire Council (BSC) and the Office of Environment and Heritage (OEH) on Modification 7 for Major Project Approval 07_0026, I provide the following information with regard to potential biodiversity impacts.

BSC (letter of 9 November 2018)

1 Perimeter Road (council access and maintenance)

It is acknowledged that the proposed layout does not include a 20 m buffer and therefore does not comply with the requirements of the approved Environmental Management Plan (EMP) and Condition B10 of the Concept Approval. Section 6.1.1 of the EMP states that a 20 m buffer be applied to retained areas of freshwater wetland within the Conservation Zone, not a 20 m buffer to the entire Conservation Zone. Mapping of the freshwater wetland was last undertaken in 2019 and is provided in **Attachment 1**.

The intent of any buffer is to minimise negative impacts upon sensitive receiving areas. In this case, protection of the Freshwater Wetland EEC within the Conservation Zone which also contains threatened Square-stemmed Spike-rush (SSSR) and Hairy Joint Grass (HJG) is required.

A proposed track within a 5 m buffer plus a 5 m no build zone has been incorporated into the current design. The 5 m buffer will comprise a 3 m wide access track and 2 m wide vegetated strip. The proposed track would have less nutrient runoff and less suspended solids than a perimeter road.

The proposed track satisfies many of requirements of a perimeter road such as:

- provides access,
- minimises private property adjoining the conservation zone and the potential to extend residential footprints,
- reduces potential for garden escapees,
- reduces illegal dumping of rubbish and green waste.

2 Outstanding Restoration Works and Bushfire Assessment

If approval from Commonwealth Department of Environment and Energy (DoEE) is obtained for additional infill plantings within the conservation zone, the bushfire assessment report concludes that APZs can still be achieved.

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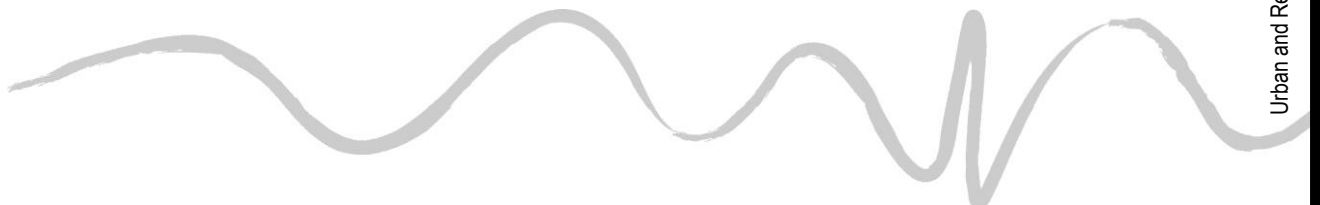
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3 Mosquito Risk

As indicated above, if approval from DoEE is obtained for additional infill plantings within the conservation zone, areas of proposed revegetation can be modified to ensure that these are set back from the proposed development to satisfy mosquito requirements.

4 Potential impacts of filling on the Hydrology of the Conservation Zone

The Revised Stormwater Assessment & Management Plan, Pacific Pines Estate, prepared by Gilbert and Sutherland, (July 2014) was approved by BSC on 6th August 2014. This Plan outlines the philosophy for stormwater management across the greater Epiq Estate. The majority of stormwater generated by the development is to be discharged to the Water Quality Control Pond (WQCP) which is located to the west of Montwood Drive. Water generated by the development to the east of Montwood Drive is to be discharged to the Conservation Zone from which it passes through the existing box culverts installed under Montwood Drive.

All previous stages of the Epiq Estate have been designed and constructed generally in accordance with this Plan. It is noted that several gross pollutant traps (GPT's) in addition to those identified in the Plan, have been installed as part of previous stages. These devices will improve the quality of the water entering the Conservation Zone.

The proposed SL5 development has been redesigned to provide an access track around the perimeter of the site. This track will be constructed 3 m wide in accordance with BSC standards and serve the dual purpose of a drain. The water from the proposed stormwater outlets will be collected to the natural flow path identified by in Plate 2 of Council's correspondence. The proposed combined path/drain will convey the flows and be located close to bed level in this location. Energy dissipaters/ rock protection will be used to slow the flows prior to their entry into the Conservation Zone.

OEH (letter of 7 November 2018)

In regard to OEH's comments on Modification 7 for Major Project Approval 07_0026, I provide the following information:

1 Impacts on Conservation Zone Management

OEH Recommendation 1

As indicated above, the project team have discussed revising the proposed layout of Super Lot 5 and propose to include an access track to separate residential lots from the conservation zone instead of a perimeter road. The access track will satisfy OEH concerns regarding access to the conservation zone for fire fighting as well as personnel/ contractors responsible for implementing weed control, revegetation and rehabilitation. Access is also available from the southern and western sides of the conservation zone.

2 Indirect Impacts on Biodiversity

OEH states that potential indirect biodiversity impacts not considered in the ecological assessment report may arise from the following sources:

- a) *Elevated nutrient and pollution levels derived from uncontrolled and untreated stormwater runoff from the backyards of 33 proposed residential lots adjoining and draining directly into the conservation zone;*

Higher nutrient and pollution levels are likely per square metre from an impermeable perimeter road than from private backyards. As indicated above however, a narrower access track with vegetated strip is now proposed which will satisfy this concern.

- b) *Weed infestations caused or exacerbated by future potential unlawful dumping of garden waste generated in the backyards of 33 residential lots proposed to adjoin the conservation zone;*

The proposed access track will negate this concern. Education and signage should also be encouraged.

- c) *Gradual informal expansion and encroachment of residential backyards (eg. manicured lawns) of proposed adjoining residential into the conservation zone; and*

The proposed access track will negate this concern. Furthermore, the 5 m buffer area will include an access track and vegetated strip plus a retaining wall which will physically prevent extension of privately manicured lawns.

- d) *Proliferation of informal walking paths emanating from the backyards of proposed adjoining residential lots into the conservation zone.*

The proposed access track will negate this concern. Furthermore, the 5 m buffer area will include an access track and vegetated strip plus a retaining wall which will physically prevent informal walking paths emanating from private backyards.

OEH Recommendation 2

Recommendation 1 has not been fully adopted therefore the above information is provided to address indirect impacts of the proposed modification.

If the approach is supported, the ecological assessment can be updated to include five-part tests in accordance with section 7.3 of the *Biodiversity Conservation Act 2016* for HJG, SSSR, Swamp Oak Floodplain Forest and Freshwater Wetland EEC.

3 Stormwater Impacts on Management of Threatened Entities

OEH Recommendation 3

The proposed stormwater management design is in accordance with the approved masterplan for the site. Stormwater runoff is treated within the Water Quality Control Pond.

Should you require any further information about this matter, please feel free to contact me.

Yours sincerely

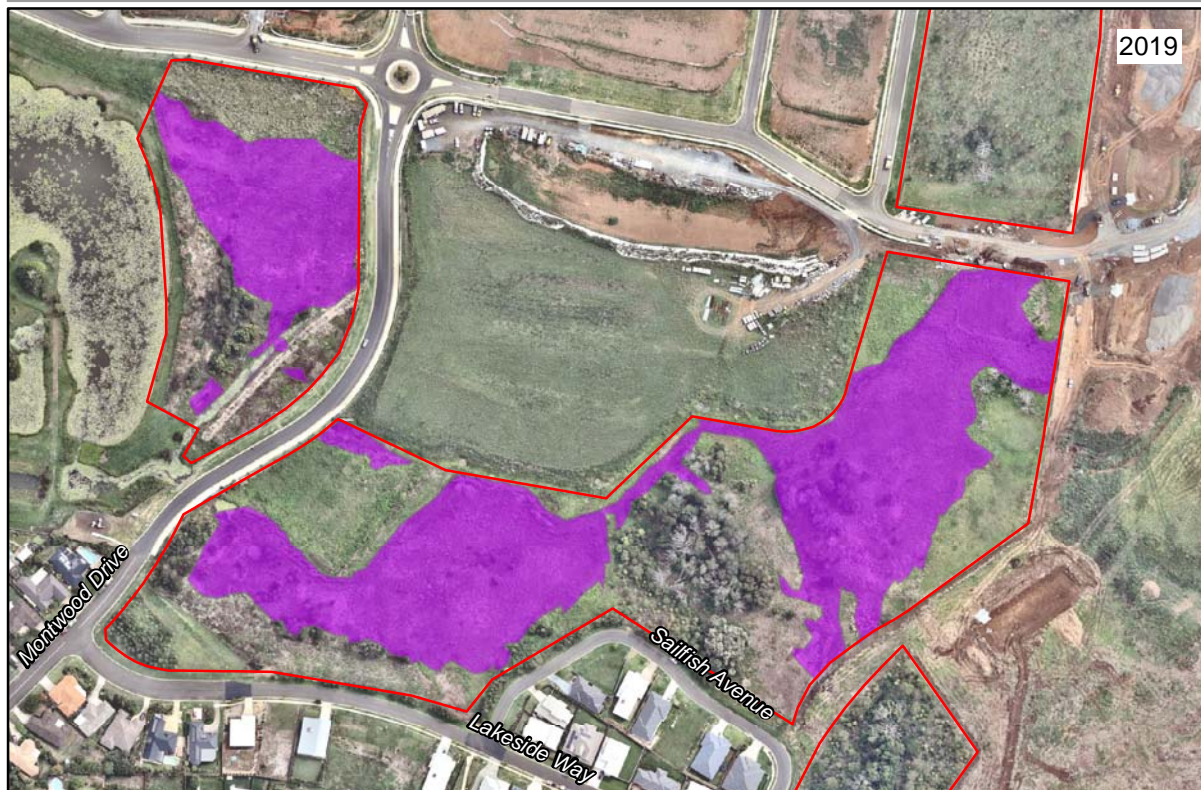
GeoLINK



Veronica Silver

Senior Ecologist/ Planner/ BPAD Accredited (No. 16289)

Copy to: Clarence Property/ Newton Denny Chapelle



LEGEND

- The site
- Conservation Zone
- Freshwater Wetland EEC 2019
- Freshwater Wetland EEC 2018

0 80



GeoLINK
environmental management and design

Freshwater Wetlands EEC Distribution within Conservation Zone

LOT AREA TABLE					
Lot No.	Area m²	Lot No.	Area m²	Lot No.	Area m²
1	218.6	51	215.3	101	124.4
2	142.3	52	231.3	102	124.4
3	142.3	53	177.0	103	200.1
4	142.3	54	177.0	104	190.0
5	142.3	55	177.0	105	124.4
6	170.7	56	221.3	106	124.4
7	170.7	57	211.0	107	124.4
8	142.3	58	137.6	108	124.4
9	142.3	59	136.4	109	124.4
10	142.3	60	136.4	110	201.8
11	142.3	61	137.6	111	148.2
12	255.5	62	271.6	112	128.4
13	248.7	63	249.2	113	181.5
14	145.3	64	145.6	114	178.9
15	145.3	65	145.6	115	123.2
16	145.3	66	145.6	116	123.2
17	145.3	67	174.8	117	123.2
18	174.4	68	174.8	118	123.2
19	174.4	69	145.6	119	123.2
20	145.3	70	145.6	120	123.2
21	145.3	71	145.6	121	123.2
22	145.3	72	249.5	122	144.2
23	203.4	73	431.5	123	144.2
24	578.7	74	166.0	124	123.2
25	248.7	75	141.9	125	123.2
26	181.9	76	142.3	126	123.2
27	181.9	77	142.3	127	123.2
28	181.9	78	142.3	128	123.2
29	181.9	79	170.7	129	192.0
30	248.8	80	170.7	130	222.1
31	373.0	81	142.3	131	209.6
32	261.5	82	142.3	132	153.3
33	281.2	83	142.3	133	153.3
34	171.2	84	142.3	134	153.3
35	172.1	85	211.2	135	153.3
36	172.1	86	174.2	136	209.6
37	206.6	87	124.4	137	320.8
38	276.9	88	124.4	138	233.7
39	247.6	89	124.4	139	153.3
40	181.8	90	124.4	140	153.3
41	181.8	91	124.4	141	153.3
42	248.7	92	124.4	142	153.3
43	291.5	93	145.7	143	153.3
44	306.6	94	145.7	144	153.3
45	248.1	95	124.4	145	182.7
46	181.0	96	124.4	146	385.3
47	181.0	97	124.4	147	454.2
48	181.0	98	124.4	148	67.9
49	181.0	99	124.4	149	57.5
50	181.0	100	124.4	150	2001.5



NOTE:
This preliminary layout has been completed in accordance with the instructions provided by Clarence Property Corporation. In this respect preliminary desktop data has been used to form this layout. The final layout is subject to the completion of a Detailed survey Subdivision Survey Plans and or Engineering plans. Accordingly, this plan may be modified by the author upon the completion of the final Survey & Site Inspection. Newton Denny Chapelle accepts no responsibility for any loss or damage suffered, however so arising, to any person or corporation who may use or rely on this Plan.

REV	DATE	AMENDMENT
A	20.06.18	
B	15.08.18	LOT 111 REMOVED - LOT NUMBERS 111 - 146 ADJUSTED - LOT 86 AMENDED
C	20.08.18	LOT 147 ADDED - PUMP STATION
D	04.07.19	LOT 24 - 56, 147 - 150 bdy, Park and carparking
E		

SOURCE PLAN: n/a
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CASINO 100 Barker St. Casino 2470
PH: 6662 5000
ABN: 86 220 045 469

P9 - PROPOSED SUBDIVISION STAGE 1C
CLIENT: CLARENCE PROPERTY CORPORATION
LOCATION: EPIQ - LOT 5 DP1239938
REV D
HUTLEY DRIVE
LENNOX HEAD NSW
DATE: 04.07.19
SCALE: 1 : 1000 @ A3
REF: 14/351
DRAWN: bk

- LEGEND:
- PROPERTY BOUNDARY
 - PROPOSED PROPERTY BOUNDARY
 - EXISTING SEWER LINE
 - EXISTING WATER LINE
 - EXISTING RECYCLED WATER LINE
 - EXISTING DRAINAGE LINE
 - EXISTING UNDERGROUND POWER
 - CURRENT ARCHITECTURAL LAYOUT
 - PROPOSED RETAINING WALL
 - PROPOSED DRAINAGE NETWORK
 - PROPOSED CONCRETE SURFACE
 - PROPOSED ASPHALT SURFACE
 - PROPOSED GRAVEL SURFACE



SITE PLAN
SCALE 1:500

FOR APPROVAL

REVISIONS			
REV	DESCRIPTION	BY	DATE
C	FOR COUNCIL APPROVAL	DY	CP 01.07.19
B	FOR COUNCIL APPROVAL	DY	CP 10.08.18
A	FOR CLIENT REVIEW	DY	CP 08.05.18

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DRAWN	DY
DESIGN	DY
APPROVED	CP
DATE	08.05.2018

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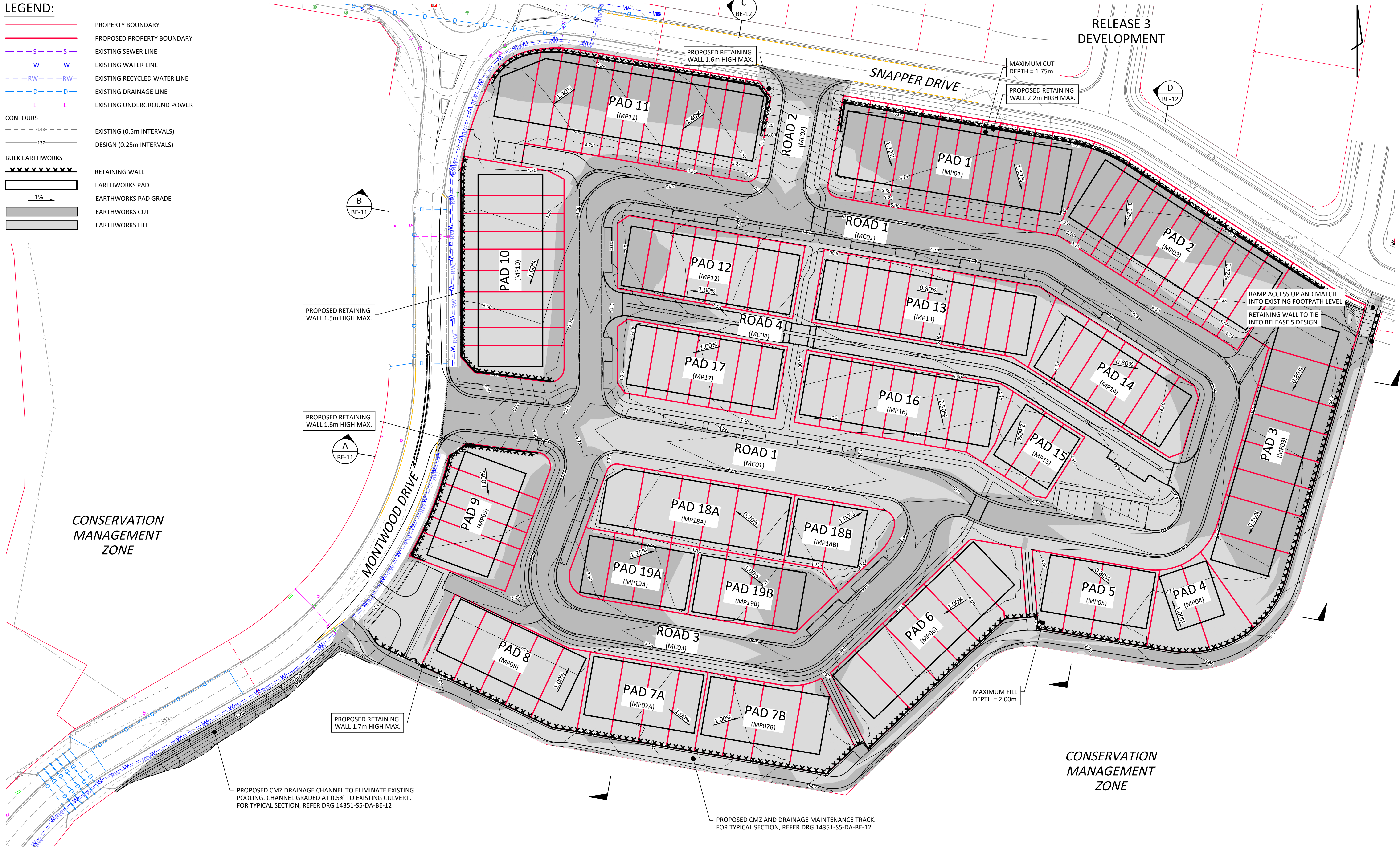
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EPIQ ESTATE - LENNOX HEAD, NSW, 2478 SUPER LOT 5 SITE PLAN		
Reference No. 2014/351	DRAWING No. 14351-S5-DA-CI-00	REVISION C

Plot Date: 01 Jul 2019 CAD File Name: K:\Jobs\2014\14351 - Clarence Property\Engineering\Superlot 5\Drawings\14351-S5-DA-CI-00.dwg

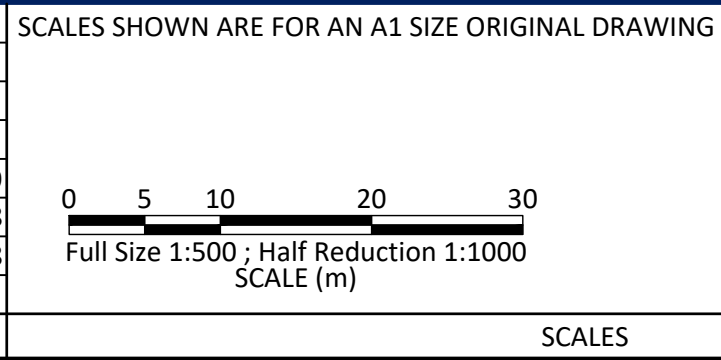
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 - EXISTING DRAINAGE LINE
 - EXISTING UNDERGROUND POWER
- CONTOURS**
- EXISTING (0.5m INTERVALS)
 - DESIGN (0.25m INTERVALS)
- BULK EARTHWORKS**
- RETAINING WALL
 - EARTHWORKS PAD
 - EARTHWORKS PAD GRADE
 - EARTHWORKS CUT
 - EARTHWORKS FILL



PLAN
SCALE 1:500

FOR APPROVAL

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A	FOR CLIENT REVIEW	DY	CP	08.05.18



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DESIGN	DY
APPROVED	CP
DATE	08.05.2018

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EPIQ ESTATE - LENNOX HEAD, NSW, 2478 SUPER LOT 5 BULK EARTHWORKS PLAN		
Reference No. 2014/351	DRAWING No. 14351-S5-DA-BE-01	REVISION C

Plot Date: 01 Jul 2019 CAD File Name: K:\Jobs\2014\14351 - Clarence Property\Engineering\Plans\Drawings\14351-S5-DA-BE-01.dwg

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 - PROPOSED PROPERTY BOUNDARY
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 - EXISTING WATER LINE
 - EXISTING RECYCLED WATER LINE
 - EXISTING DRAINAGE LINE
 - EXISTING UNDERGROUND POWER
 - PROPOSED
 - ROAD CONTROL LINE
 - RETAINING WALL
 - DRAINAGE
 - SEWER
 - PROPOSED CONCRETE SURFACE
 - PROPOSED ASPHALT SURFACE
 - PROPOSED THRESHOLD SURFACE TREATMENT
 - PROPOSED GRAVEL SURFACE

PROVIDE A CENTRAL 1m WIDE TRAFFIC ISLAND TO FACILITATE A 'LEFT IN - LEFT OUT' TREATMENT TO THE INTERSECTION OF MONTWOOD DRIVE AND ROAD 1. TRAFFIC ISLAND AND LINE MARKING TO BE IN ACCORDANCE WITH BCC STD DRG BSD-5260 AND MUTCD.

PROVIDE 'NO STOPPING' ZONE TO SNAPPER DRIVE AND ROAD 2 INTERSECTION IN ACCORDANCE WITH BITZIOS TRAFFIC ENGINEERING REPORT

RELEASE 3 DEVELOPMENT

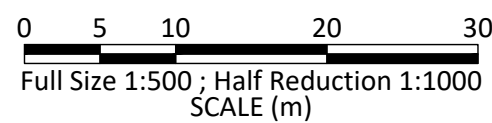
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CONSERVATION MANAGEMENT ZONE

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EPIQ ESTATE - LENNOX HEAD, NSW, 2478
SUPER LOT 5
CIVIL WORKS
PLAN

Reference No.
2014/351

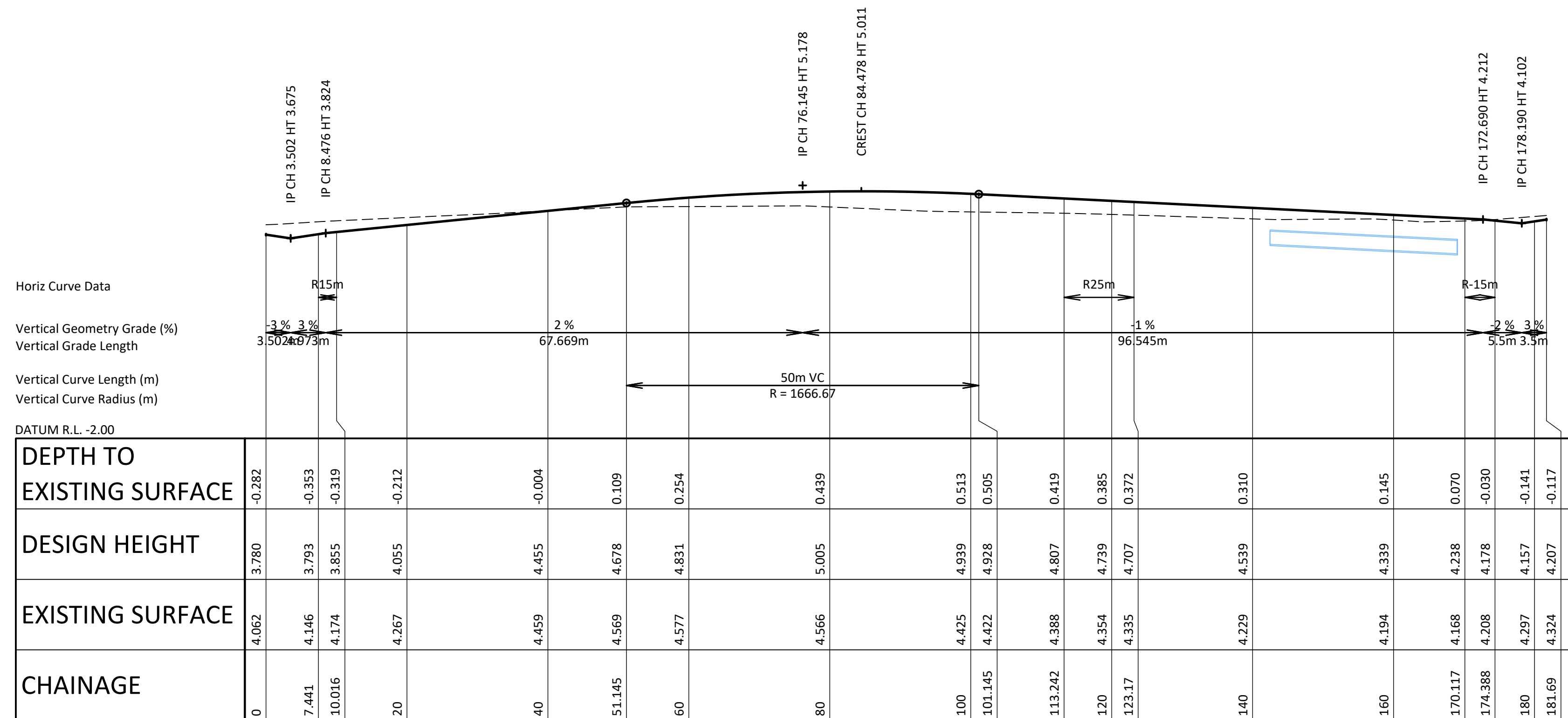
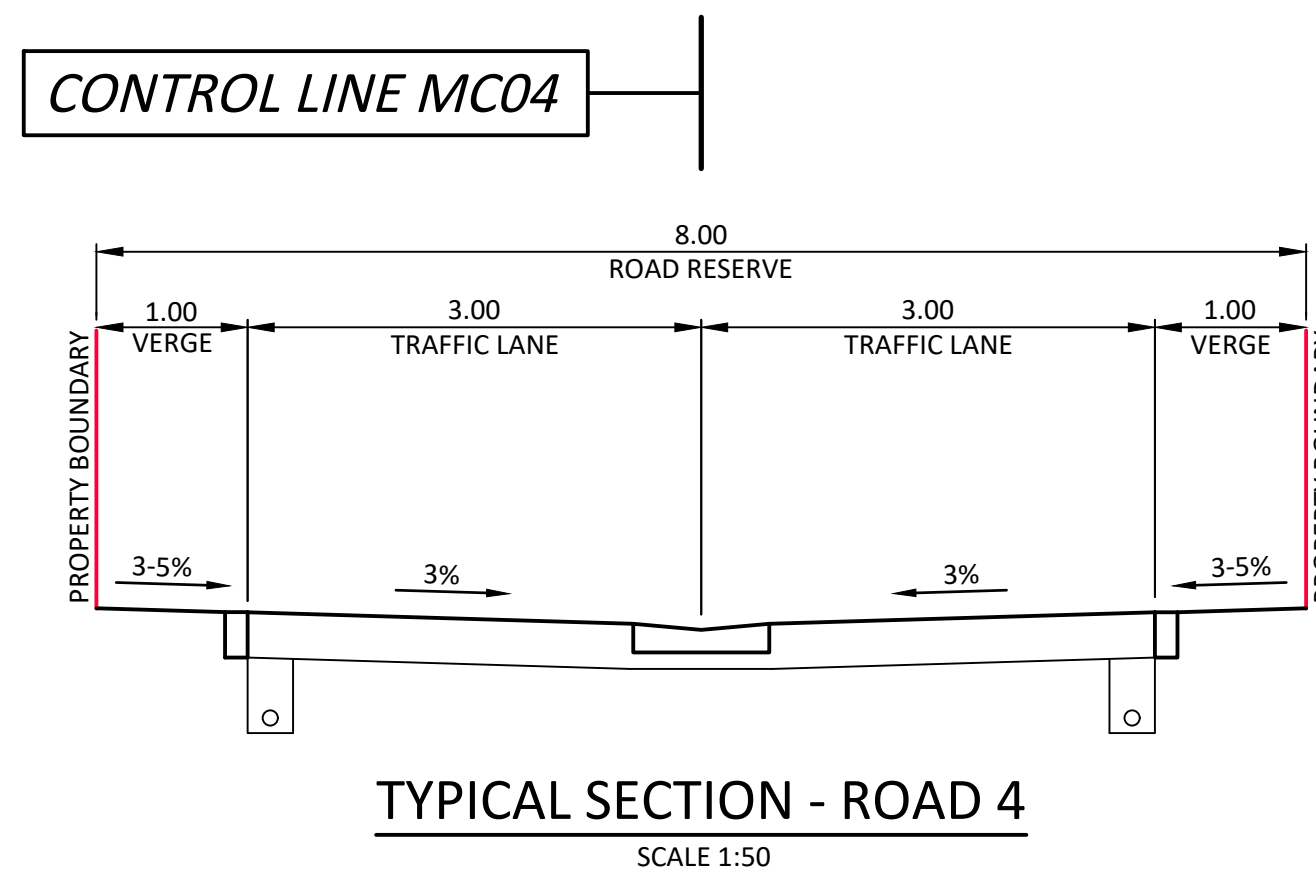
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THIS PLAN IS NOT FOR CONSTRUCTION UNLESS STAMPED BY THE PRINCIPAL CERTIFYING AUTHORITY AND ISSUED WITH A NUMERICAL REVISION

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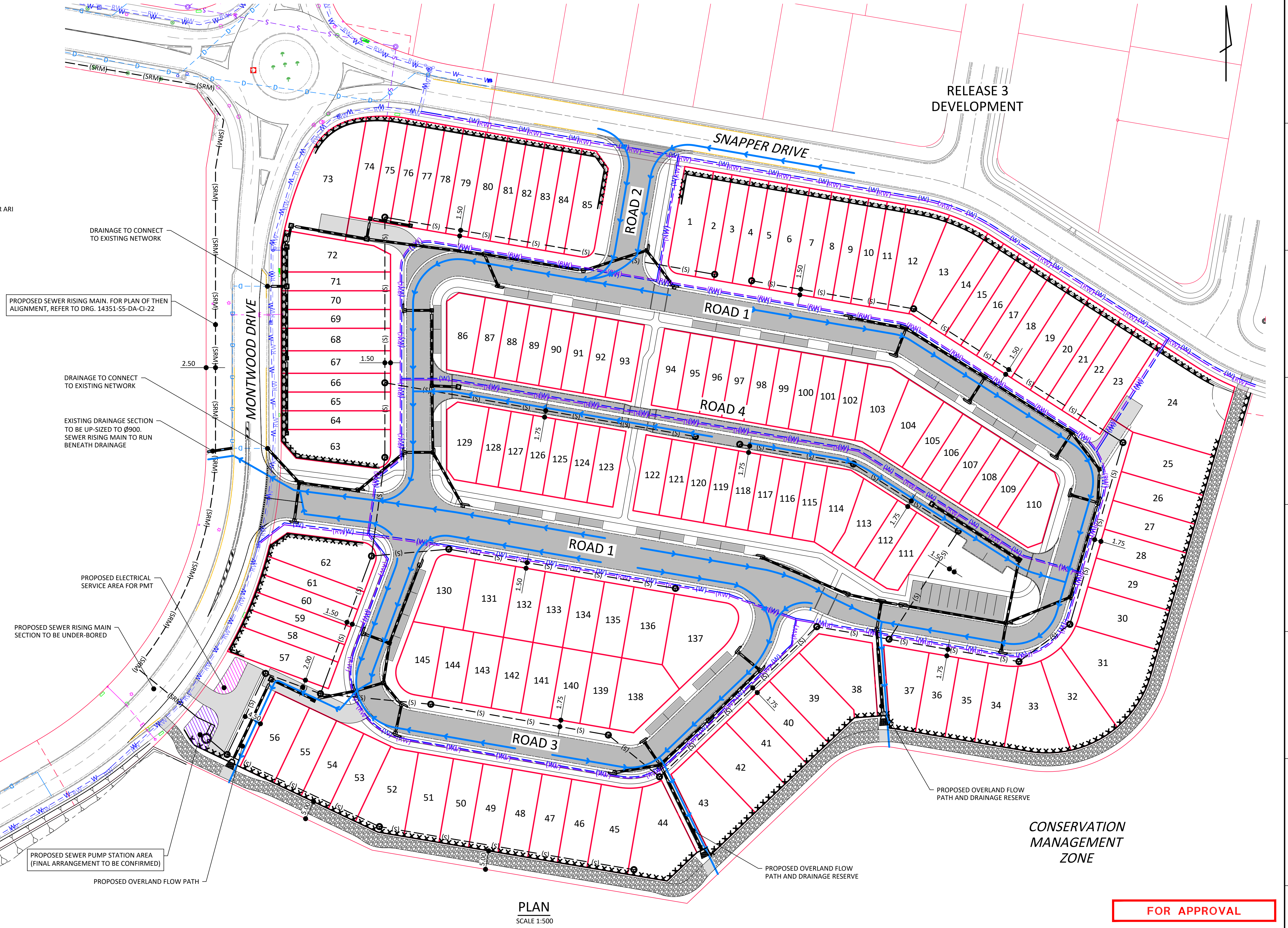
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EPIQ ESTATE - LENNOX HEAD, NSW, 2478 SUPER LOT 5 CIVIL WORKS LONGITUDINAL SECTION - MC04		
Reference No. 2014/351	DRAWING No. 14351-S5-DA-CI-14	REVISION B

- LEGEND:**
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 - PROPOSED PROPERTY BOUNDARY
 - EXISTING SEWER LINE
 - EXISTING WATER LINE
 - EXISTING RECYCLED WATER LINE
 - EXISTING DRAINAGE LINE
 - EXISTING UNDERGROUND POWER
- PROPOSED SERVICES**
- DRAINAGE
 - SEWER
 - SEWER RISING MAIN
 - WATER - POTABLE
 - WATER - RECYCLED
 - OVERLAND FLOW PATH - 100 YEAR ARI



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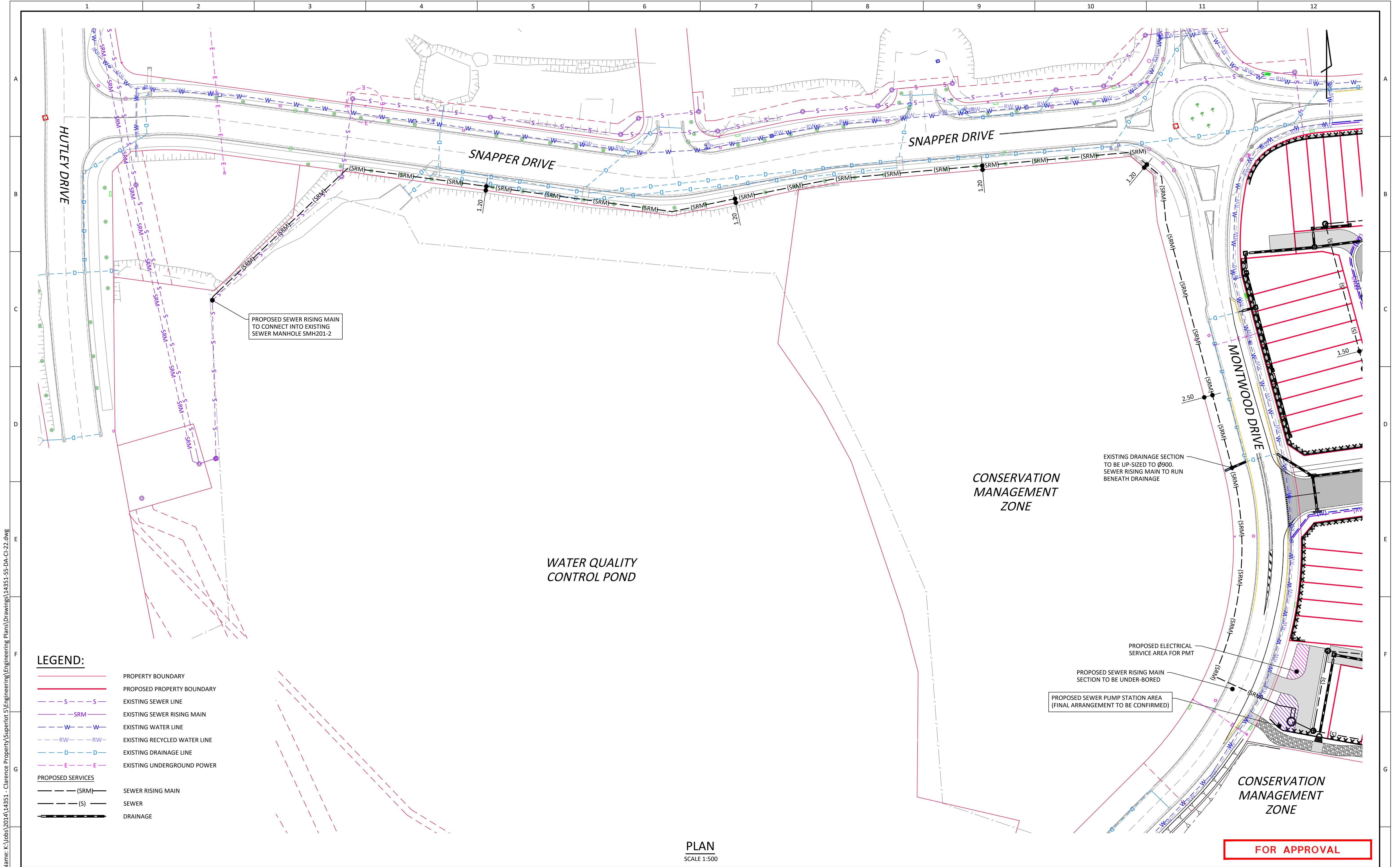
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Reference No. 2014/351	DRAWING No. 14351-S5-DA-CI-21
REVISION C	

Plot Date: 01 Jul 2019 CAD File Name: K:\Jobs\2014\14351 - Clarence Property\Superlot 5\Engineering\Plans\Drawings\14351-S5-DA-CI-22.dwg



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PROPERTY**

EPIQ ESTATE - LENNOX HEAD, NSW, 2478 SUPER LOT 5 CIVIL SERVICES - SEWER RISING MAIN PLAN			REVISION C
Reference No. 2014/351	DRAWING No. 14351-S5-DA-CI-22		

enquiries refer
Peter Drew
in reply please quote
19/46386



28 June 2019

Mr Damian Chapelle
Newton Denny Chapelle

By email - dchapelle@newtondennychapelle.com.au

Dear Damian

Re: Modification 7 - Epiq Lennox (Pacific Pines Estate), Lennox Head Major Project Approval 07_0026 MOD 7

I refer to your letter dated 23 May 2019 in response to matters raised in Council's submission to NSW Planning and Environment on proposed modification 6 to Major Project Approval 07_0026 MOD 7 at EPIQ Lennox.

As indicated in our submission to NSW Planning and Environment, it is Council's preference for the subdivision layout to incorporate a perimeter road between Super Lot 5 and the conservation management zone. Notwithstanding this, it is accepted that reasonable environmental outcomes can still be achieved through your proposed subdivision design.

The information provided generally addresses Council's previous concerns in relation to this proposed modification. Accordingly, Council raises no objection to this modification as depicted in Plan of Drainage Works (Drawing No. 14351-S5-SK-DR-01 Rev B – dated 28.03.19) prepared by Newton Denny Chapelle, subject to suitable conditions being imposed by the Department of Planning and Environment and the following design changes being made prior to the issue of any approval.

- The proposed gravel access track around the southern and eastern perimeter of Super Lot 5 being increased to 3m in width with an additional 0.5m clearance on each side to facilitate access for maintenance vehicles.
- Provision of a central island in Montwood Drive to prevent right turn movements and restrict access to left in / left out only.

Subject to the above design changes and suitable conditions being imposed by the Department of Planning and Environment, Council does not object to the proposed modification.

Detailed assessment of subsequent Construction Certificates(s) for the proposed subdivision and development application(s) for the 'proposed small lot integrated housing' development will be undertaken by Council at a later stage. Given that there is intention to adjust the approach to the management of the conservation area adjoining Super Lot 5, I note the housing applications will need to be considered having regard for the circumstances associated with the conservation area that are applicable at the time.

If you have any enquiries in regard to this matter please contact Peter Drew on telephone 6686 1254.

Yours faithfully

Matthew Wood
Director
Planning and Environmental Health Division

BUSH FIRE ASSESSMENT REPORT

Lot 5 DP 1239938

Montwood Drive Lennox Head

Proposed 145-lot residential use and concept

Prepared for: Clarence Property Corporation Limited

Prepared by:

Peter Thornton

BPAD-L3 ACCREDITED PRACTITIONER

Date: 16 August 2018 amended

Ref: 18/273

BCA Check Pty Ltd
t/as Bushfire Certifiers
4/57 Ballina Street Lennox Head NSW 2478 Australia
(PO Box 375 LENNOX HEAD NSW 2478)

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Peter Thornton MFireSafeEng
BPAD-L3 Accredited Practitioner No. 14867
Building Surveyor MAIBS



DOCUMENT CONTROL

Revision No.	Date	Description	Prepared	Checked	Authorised
A	16.08.2018	Final	Peter Thornton	SJT	Peter Thornton
B	30.03.2019	Draft amendment	Peter Thornton	SJT	Peter Thornton
C	12.04.2019	Amended Final	Peter Thornton	SJT	Peter Thornton

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1.0 EXECUTIVE SUMMARY

This report has been prepared for the proposed 145-lot residential subdivision known as Epiq Super Lot 5 (Stage 1B) at Lot 5 DP 1239938, Montwood Drive Lennox Head against the requirements of Planning for Bushfire Protection, 2006 (PBP2006).

Whilst, the subject allotment is not mapped as being bushfire prone, the revegetation of the conservation land to the south and southeast of the proposed subdivision has been taken into consideration in the bushfire threat assessment as potentially being a bushfire hazard.

The bushfire report dated 16th August 2018 has been amended to address the following –

1. NSW RFS request for further information dated 12th November 2018.
2. Identifying the proposed 5m accessway and associated shoulders as not being a bushfire hazard and included in the separation distance to the indicative building locations being 5m from the rear boundary for the lots on the bushfire hazard interface.
3. An amended assessment relating to the proposed remnant rainforest re-vegetation in the area in the northwest corner of the reserve as shown in the plan prepared by Geolink (see Figure 9).

The report provides further details of the bushfire design brief prepared by this office dated 15th August 2016 with concurrence received from Alan Bawden NSW RFS on 13th October 2016 in relation to the vegetation classification, removal of perimeter road and s4.1.3(1) PBP2006 requirements.

The concept plan provided identifies a nominal 10m distance to the bushfire hazard from the rear building line setback. In this regard the report demonstrates compliance with Table A2.5 PBP2006.

The 10m setback to the bushfire hazard consists of a 5m asset protection zone within the subject property boundaries with the rear boundaries adjusted to provide a 5m wide access way for Ballina Shire Council consisting of a concrete access path and managed shoulders as shown in Figure 3 (larger image in appendix). This 5m width of pathway and shoulders is not considered to be a bushfire hazard for the purposes of an assessment pursuant to PBP2006.

The following table is provided as a summary of the recommendations and method of assessment for each consideration relating to Planning for Bushfire Protection 2006.

MEASURE	RECOMMENDATION	METHOD OF ASSESSMENT
APZ Required	Each allotment is to be maintained as an inner protection area (IPA).	Acceptable Solution
Water Supply	Street hydrants are to comply with s4.1.3 PBP2006.	Acceptable Solution
Electricity Supply	New electricity supply to be in accordance with s4.1.3 PBP2006.	Acceptable Solution
Gas Supply	Gas supply to comply with PBP2006.	Acceptable Solution
Construction Standards	Future dwellings are capable of being sited to receive <29kW/m ² & are to be assessed in accordance with s4.15 or s100B for subdivision.	Acceptable Solution
Landscape	Landscaping is to comply with Appendix 5 of PBP2006.	Acceptable Solution
Access	See performance solution. Consent consideration to s142 Local Government Regulation.	Performance Solution

The report makes the following summary of recommendations for the development.

1. Any future dwellings on the proposed lots are to be assessed in accordance with s4.15 of the Environmental Planning and Assessment Act 1979 or s100B of the Rural Fires Act 1997 for subdivision.
2. At the commencement of works and in perpetuity each allotment is to be managed and maintained as an Asset Protection Zone (APZ) to prevent the spread of a fire towards the buildings in accordance with the requirements of Standards for Asset Protection Zones (RFS 2005) (see Appendix C).
3. Water, electricity and gas services shall comply with s4.1.3 of Planning for Bushfire Protection 2006.
4. Landscaping is to be undertaken in accordance Appendix 5 of Planning for Bushfire Protection 2006 and managed and maintained in perpetuity.

2.0 INTRODUCTION

2.1 GENERAL

The purpose of this report is to establish suitable measures to provide bushfire mitigation measures in order for Council to make determination of the proposed 145-lot residential subdivision known as Epiq Super Lot 5 (Stage 1B) at Lot 5 DP 1239938, Montwood Drive Lennox Head against the requirements of Planning for Bushfire Protection, 2006.

Whilst the subject allotment is not mapped as being bushfire prone, the revegetation of the conservation land to the south and southeast of the proposed subdivision has been taken into consideration in the bushfire threat assessment as potentially being a bushfire hazard.

2.2 SIGNIFICANT ENVIRONMENTAL FEATURES

An assessment is to be undertaken, if applicable, with regard to:

- State Environmental Planning Policy No. 44 (Koala Habitat Protection)
- Biodiversity Conservation Act 2016 (NSW)
- Local Land Services Act 2013 (NSW)
- Land Management (Native Vegetation) Code 2017 (NSW)
- National Parks and Wildlife Act 1974 (NSW)
- Environmental Protection and Biodiversity Conservation Act 1999 (Cwlth).

This report does not consider the above legislation and in this regard this report should be read in conjunction with the Statement of Environmental Effects submitted with the application to the consent authority.

2.3 REPORT DETAILS

Report Reference No.:	18/273
Property Address:	Lot 5 DP 1239938, Montwood Drive Lennox Head
Client:	Clarence Property Corporation Limited
Local Government Area:	Ballina Shire Council
Proposal:	145-lot residential subdivision
Drawings:	TVS Architects, Site plan Dwg. No.5551.1S.02.0 dated 03.08.2018
Report Prepared By:	Peter Thornton MFireSafeEng Building Surveyor (MAIBS) BPAD – L3 Accredited Practitioner

3.0 PROPOSED DEVELOPMENT

The applicant is proposing a 145-lot residential subdivision known as Epiq Super Lot 5 (Stage 1B) at Lot 5 DP 1239938, Montwood Drive Lennox Head with no Special Fire Protection Purpose (SFPP) development proposed.

The subdivision will include public roads that will be constructed to Ballina Shire Council construction design requirements.

The proposed modification will seek to undertake amendments to the Concept Approval (MP 07_0026). The key changes proposed for the approved development:

- *Amending the development concept for Super Lot 5 from 'retirement community' to 'small lot integrated housing';*
- *Establishing detailed design guidelines for the proposed subdivision and development of Super Lot 5 to supersede the current retirement community design guidelines; and*
- *Amending the lot layout and road network to respond to the revised proposal.*

These matters are described in more detail below.

3.1.1 Modify Super Lot 5 to Provide Small Lot Integrated Housing

The proposal seeks to subdivide and develop Super Lot 5 to provide small lot integrated housing on torrens title allotments, rather than seniors or retirement living. The rationale for the change relates to the following:

- a. Since the time of the original approval, two large seniors living developments have been approved in the Ballina / Lennox Head area – Palm Lakes Resort at North Creek Road Ballina (partly occupied and under construction) and GemLife Lennox Head at Skennars Head Road (to be constructed). These facilities provide a range of 'resort style' selfcare seniors living units and supplement the current supply of 'standard' selfcare accommodation opportunities provided by St Andrews Village, Crowley Village and the RSL Lifecare. As such, there is limited market demand for further accommodation of this kind at the current time.*
- b. Our clients are aware that there is significant demand for affordable entry level housing options in locations which are readily accessible to services and infrastructure. This is evidenced by the high level of demand for the early subdivision releases within Epiq Lennox.*
- c. Super Lot 5 is ideally located adjacent to shopping and sporting facilities to cater for relatively higher density integrated small lot housing. As such the proposal will cater for all age groups.*

The modified proposal seeks to provide subdivide the subject land into 145 torrens title

allotments with sizes ranging between 123m² to 672m², with a 'typical' area ranging between 125m² to 225m². Internal public roads and pedestrian pathways will be provided in generally a modified grid pattern, whilst on-street parking is also afforded within the public road design.

*It is intended the allotments will be sold on a 'house and land package' basis, with each property constructed with a 2 storey attached or semi-detached dwelling. Four separate unit types are proposed depending on available lot frontage as illustrated within the design package contained within **Attachment 1**.*

The current modification seeks to adopt design guidelines for these dwellings, which will then form the basis of the assessment of future development application/s to Ballina Shire Council. Given the nature of the subdivision, clear design guidelines are considered critical to guide the integrated development of Super Lot 5, including matters such as:

- Car parking;*
- Building design;*
- Site and open space design;*
- Lot size and subdivision;*
- Street design; and*
- Connectivity to neighbourhood retail centre.*

The design guidelines will ensure the desired architectural and operational features of this form of development are embodied into an integrated housing package.

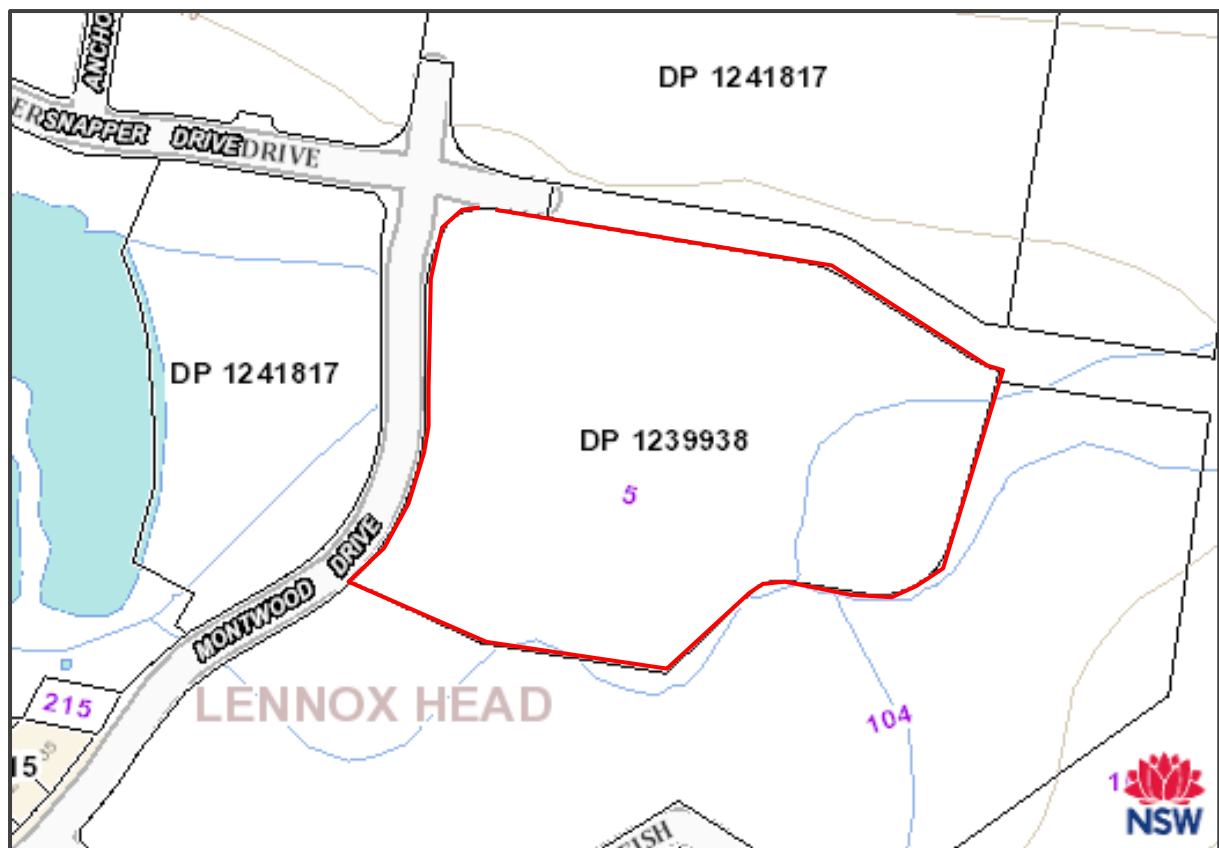


Figure 1: Location of proposed subdivision

Source: NSW Govt Six Maps

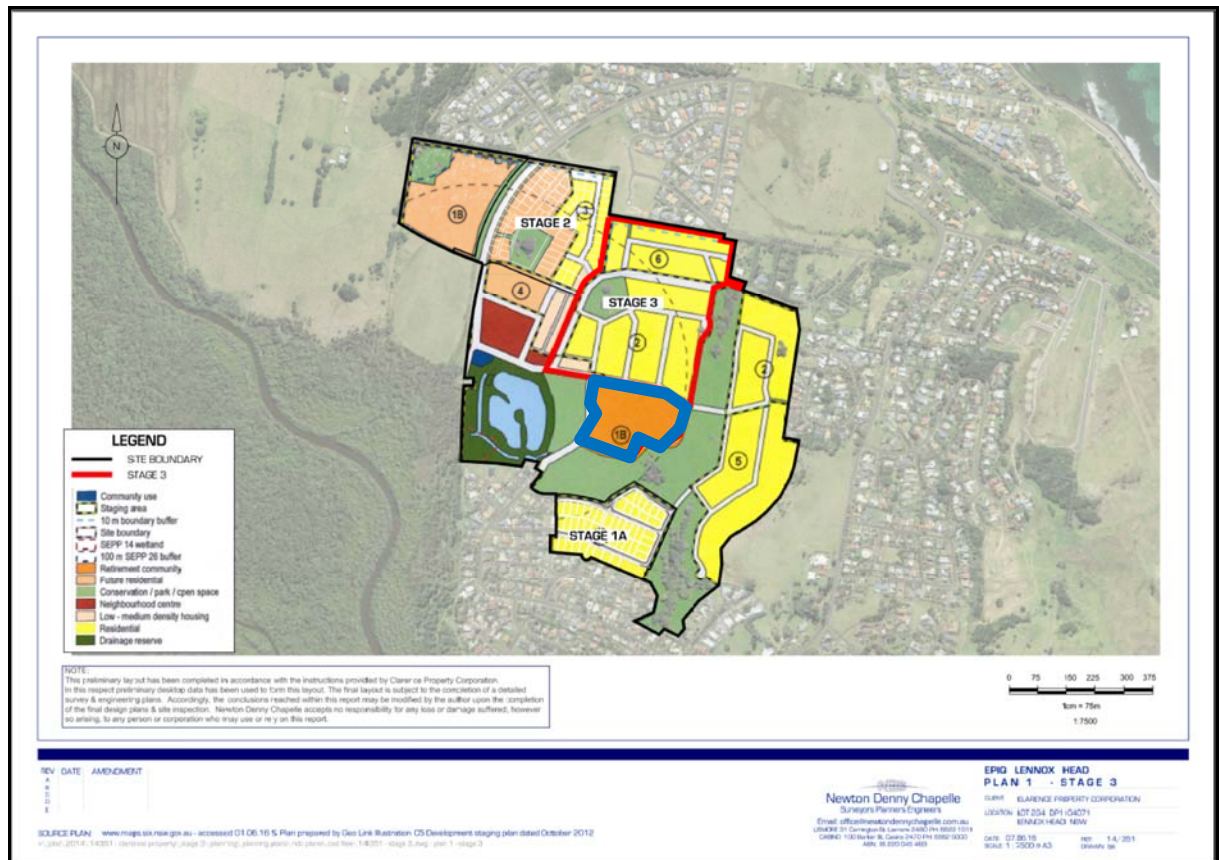


Figure 2: Super Lot 5 (now known as Stage 1B) – Blue outline



Figure 4: Bushfire prone land map with subdivision not on mapped bushfire prone land
Planningportal.nsw.gov.au



Freshwater wetland to the south and southeast.



Remnant vegetation to the southeast



Figure 5: Current aerial image (boundary approximate)

TerraServer, 03.07.2018

An inspection of the subject site was undertaken to establish the hazard classification that will most likely influence the bushfire behaviour. The inspection identified that the proposed conservation area as outlined in the Environmental Management Plan (EMP) prepared by GeoLINK UPR 1675-1132, v10 dated July 2013 identified on site.

The hazard that will impact the Super Lot 5 (stage 1b) will be the revegetation of the conservation land to the south and southeast that requires the management of hairy joint grass, freshwater wetland, rainforest and small patch of swamp forest. The slopes varied from upslope to 0-5° downslope in relation to the proposed development area however it was generally located on flat topography. The area of conservation is identified in the EMP Illustrations 3.2 provided in Attachment 1.

It was noted the Pacific Pines Conservation Zone Management Plan v6 February 2017 establishes the existing regeneration of the swamp sclerophyll forest will be minimal in area in comparison to the littoral rainforest, grassland and freshwater wetland regeneration. In turn, this area of forest and the location amongst the other vegetation classifications will not be the dominant vegetation that will determine the bushfire behaviour at the hazard interface.

For the subdivision of Super Lot 5 it is considered that the proposed freshwater wetland revegetation will influence the bushfire behaviour given the area of forested wetland (existing and proposed) is shown to be approximately 0.4ha and the freshwater wetland is located at the development interface as shown in Figure 6. Confirmation of the vegetation classifications has been received by the consultant ecologist Veronica Silver (Geolink Pty Ltd).

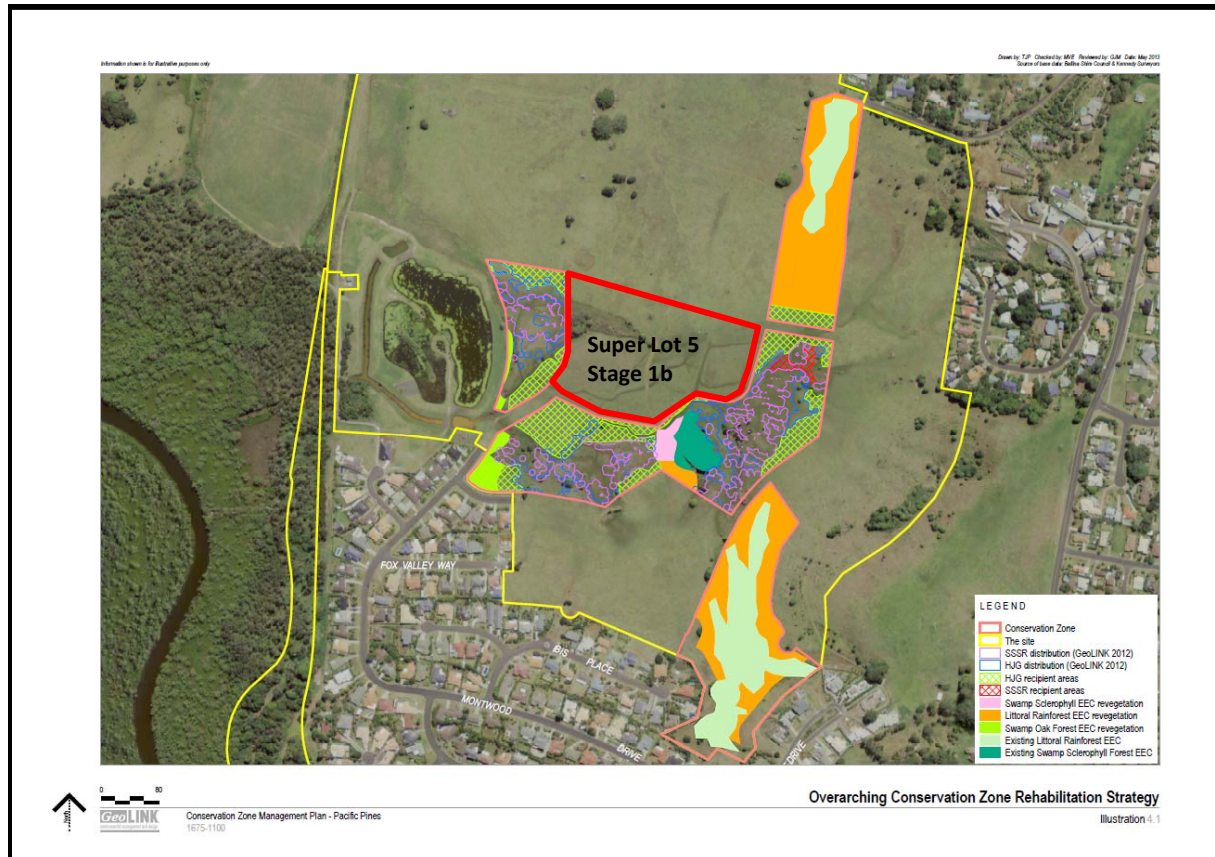


Figure 6: Revegetation plan.

In response to initial NSW RFS advice following consultation with the response was that *"the NSW RFS would require specific detail on the revegetation of the riparian corridor adjoin the residential lots"*. In this regard this office was provided with the Vegetation Monitoring Report prepared by Geolink dated August 2015 with first issue though dated 14th September 2015. The relevant excerpts relating to the forested wetland and the on-going maintenance to ensure it remains treeless in these areas as shown in Figure 7 is provided in Appendix B.

The future development is proposed as residential unit development and is not classified as a retirement village or the like. In turn, Planning for Bushfire Protection 2006 does not classify this type of development as a Special Fire Protection Purpose.

In this regard the asset protection zones (APZs) for this type of development of Super Lot 5, based on the Conservation Zone Management Plan and the dominant area of freshwater wetland will be a minimum 10m pursuant to Table A2.5 of Planning for Bushfire Protection 2006.

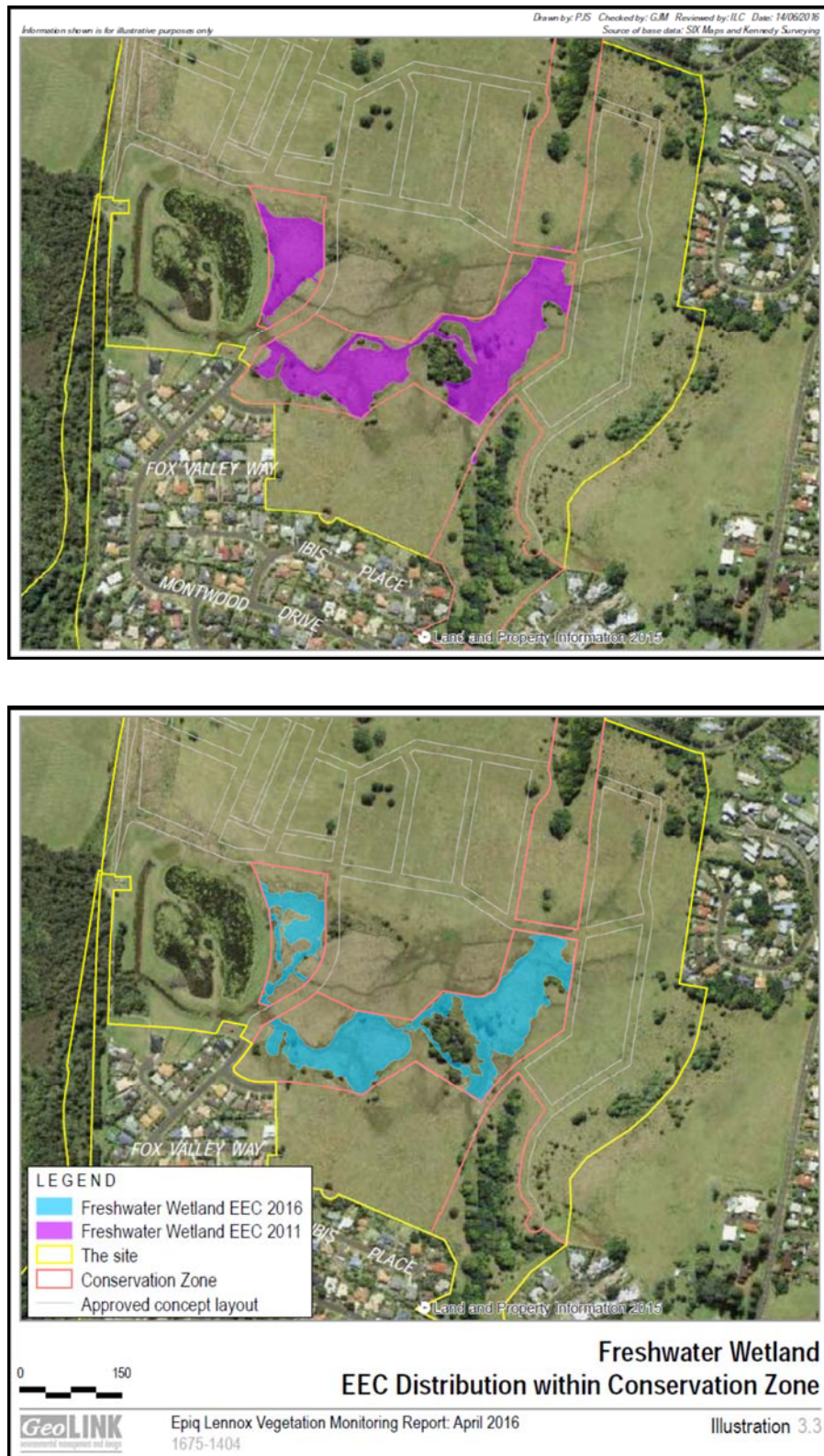


Figure 7: Location of freshwater wetlands

It was noted that the Final EMP prepared by Geolink dated 16/07/2013 s5.4 (see Figure 8) identifies asset protection zones (APZs) for Super Lot 5 that are for Special Fire Protection Purpose developments (except grassland) however this does not relate to the proposed use being subject to this report.

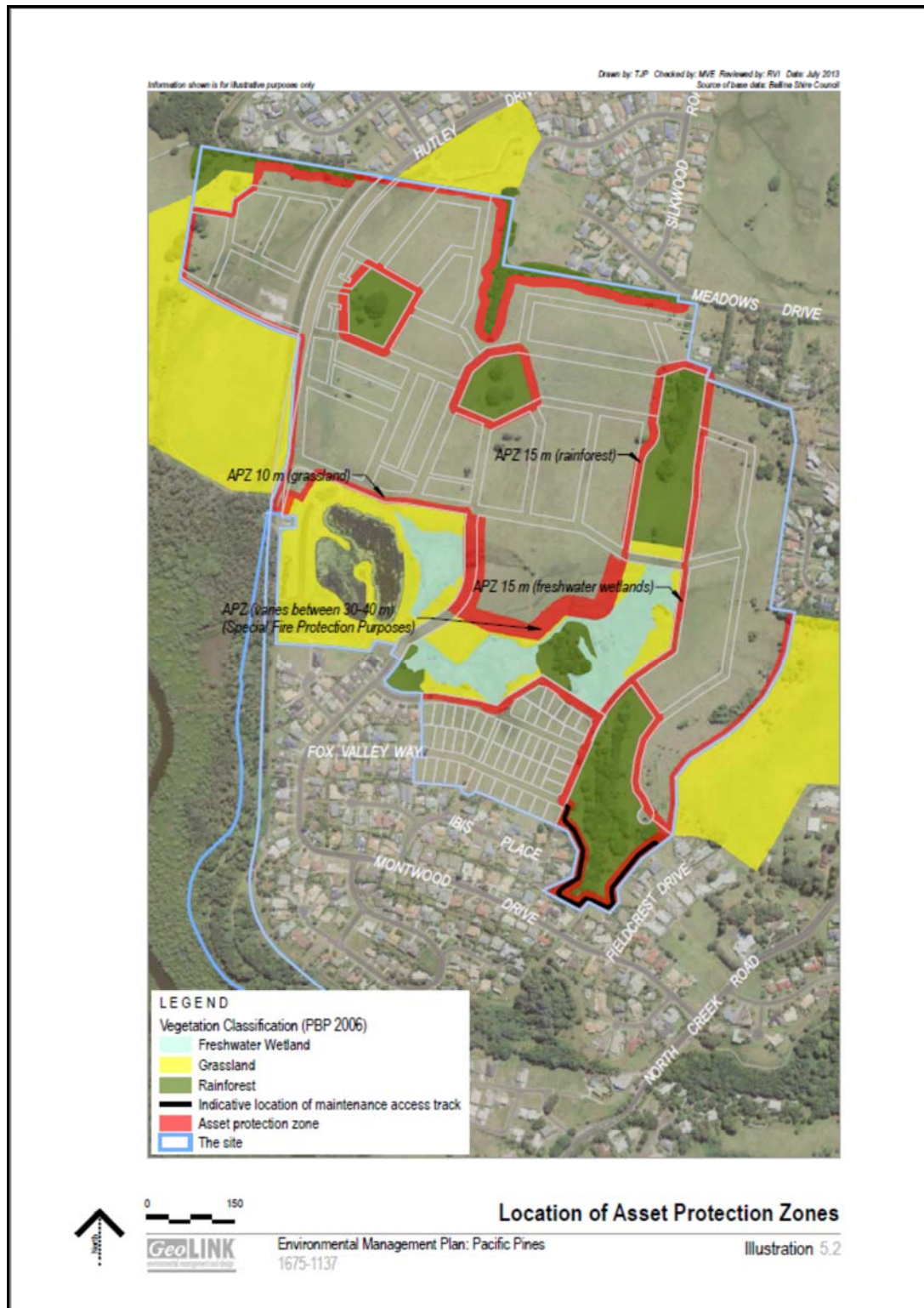


Figure 8: Geolink APZs outlined in the Environmental Management Plan prepared by Geolink dated 16/07/2013 s5.4.

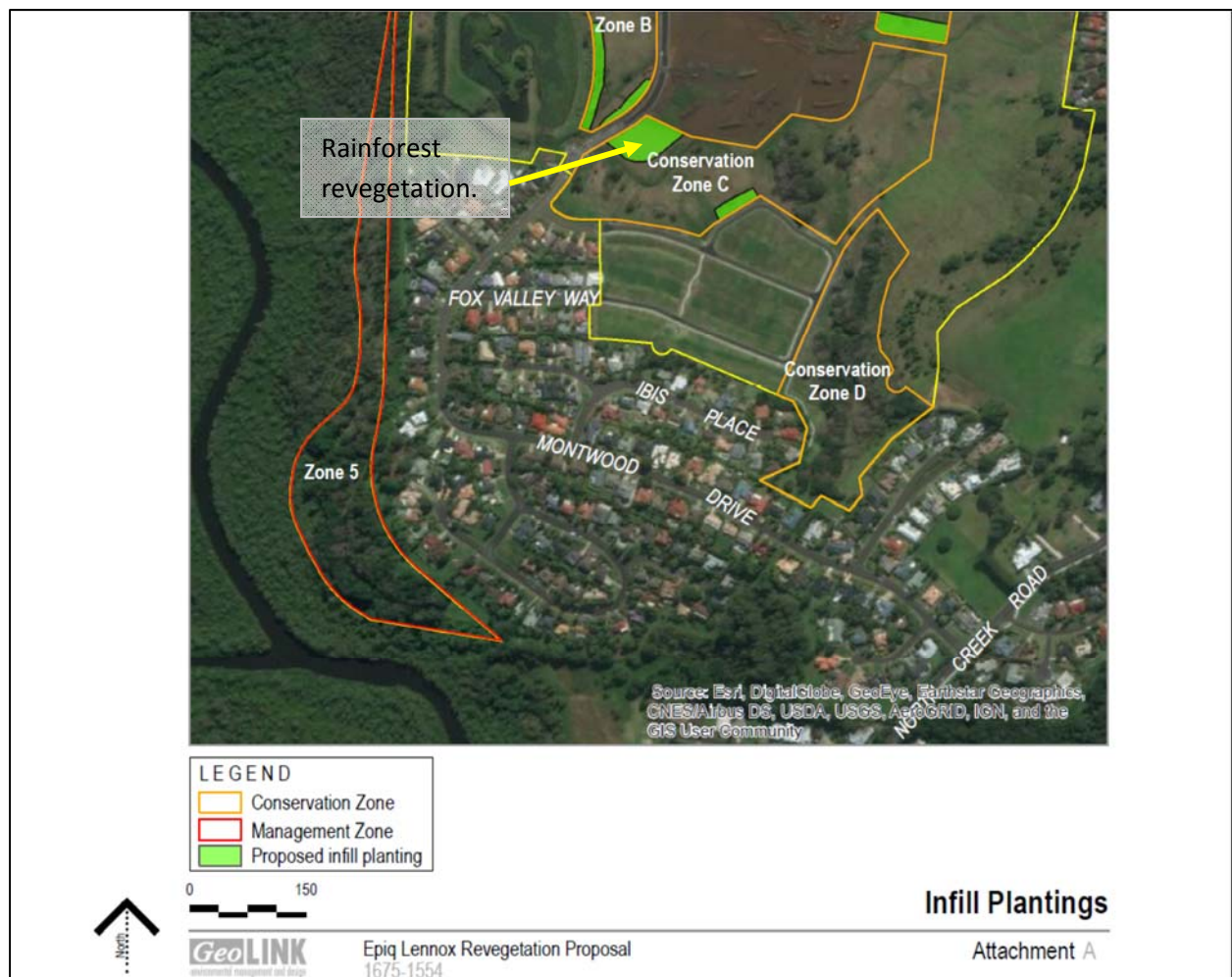


Figure 9 – Latest plan from Geo-link identifying small area to the southwest to be revegetated with rainforest vegetation.

Figure 9 is a plan from Geo-link identifying a small area to the southwest will be revegetated with rainforest vegetation forming part of a vegetation management plan. This is confirmed by Geolink in an email dated 9th April 2019 which advises –

GeoLINK propose to modify the approved Conservation Zone Management Plan to include planting of rainforest species within the north-western corner of the central conservation zone adjacent to super lot 5. The area is currently grassland.

The aim of infill plantings is to establish rainforest in areas that are not suitable as freshwater wetland or threatened Hairy Joint Grass (HJG) habitat to reduce weed control efforts in the long term. Establishing rainforest may also provide surrogate HJG habitat along edges and ecotones.

Previous recommendations (to undertake infill plantings within the conservation zone) have been approved in principle by the client, OEH and Council. However, the Federal Department of Environment and Energy (DoEE) has not yet provided

support for any proposed infill plantings. If DoEE or the NSW Rural Fire Service do not approve of the proposed rainforest planting, this area will remain as grassland.

In this regard the proposed 10m managed land buffer the potential building envelopes will be adequate for compliance with Table A2.5 Planning for Bushfire Protection 2006.

Table 1: Bushfire Threat Assessment

Aspect	Veg. Slope	Dominant Vegetation Formation Class (Table A2.1 PBP2006)
North	n/a	Future subdivision – non-hazard.
East	0°	Freshwater wetland.
South	0°	Freshwater wetland.
Southwest	0°	Freshwater wetland/remnant rainforest
West	0°	Freshwater wetland.

5.0 ASSET PROTECTION ZONES AND CONSTRUCTION STANDARDS

Asset Protection Zones are areas established and maintained to ensure that bushfire fuels are progressively reduced between the development and the bushfire hazard. The asset protection zone incorporates an Inner Protection Area (IPA) having reduced fuel loadings of approximately 3t/ha.

At the commencement of works and in perpetuity each allotment is to be managed and maintained as an Asset Protection Zone (APZ) to prevent the spread of a fire towards the buildings in accordance with the requirements of Standards for Asset Protection Zones (RFS 2005) (see Appendix C). The building line to the boundary adjacent to the conservation area is to be a minimum 10m.

Table 2: Summary Bushfire Threat Assessment

Aspect	Veg. Slope	Vegetation Class	Setback from Hazard	Complies A2.5 PBP2006 and <29kW/m ² received.
North	n/a	n/a	-	Yes
East	0°	Freshwater wetland.	10m	Yes
South	0°	Freshwater wetland.	10m	Yes
Southwest	0°	Freshwater wetland/Grassland	10m	Yes
West	0°	Freshwater wetland.	10m	Yes

6.0 WATER AND UTILITY SERVICES

6.1 WATER SERVICES

The development will be required to have street hydrants to council requirements pursuant to clause 142 Local Government Regulation which will provide adequate coverage and pressure and flows for fire brigade intervention in a bushfire event.

6.2 ELECTRICITY SERVICES

Electricity services shall comply with s4.1.3 of Planning for Bushfire Protection 2006.

6.3 GAS SERVICES

Should a gas service be installed the following aspects will require consideration:

- Reticulated or bottled gas installed and maintained in accordance with AS 1596 with metal piping used.
- Fixed gas cylinders to be kept clear of flammable material by a distance of 10m and shielded on the hazard side of the installation
- Gas cylinders close to the dwelling are to have the release valves directed away from the building and at least 2m from flammable material with connections to and from the gas cylinder being of metal.
- Polymer sheathed flexible gas supply lines to gas meters adjacent to the buildings are not used.

7.0 ACCESS

A bushfire design brief prepared by this office dated 15th August 2016 (amended) with concurrence received from NSW RFS on the 13th October 2016. The following is provided and is consistent with the bushfire design brief.

The applicant is proposing an internal road network that will allow egress away from the bushfire hazard that has mapped the subject property as being designated bushfire prone land. There will be provided a fire hydrant system to AS 2419.1-2005 it being noted that the site is serviced by the NSW Fire Brigade.

Perimeter Roads

As stated in section 4.1.3(1) PBP2006 a perimeter road is the preferred option in subdivision design. The primary purpose of the perimeter road is to;

- Provide fire-fighters with easier access to structures, allowing more efficient use of firefighting resources;

Comment:

There will be access through the subject properties that allow fire fighters easy access to the structures. It is also noted that street hydrants will be provided with compliant coverage and will allow fire fighters to stage any fire-fighting from the street.

- Provide a safe retreat for firefighters;

Comment:

Given the potential street hydrant locations and the short intervals between access points allowing fire hydrant hoses to cover all areas of the structure when staged from the public road.

- Provide a clear control line from which to conduct hazard reduction or back burning operations.

Comment:

Consideration in relation to perimeter roads needs to take the bushfire hazard and risk into account. When the hazard is high in relation to vegetation type i.e. forest, slopes and fire runs then a bushfire will have the potential to have a high level of intensity and rate of spread. In these circumstances it is critical to have perimeter roads to enable firefighters to be able to work adjacent to the hazard in order to create clear control lines to undertaken hazard reduction or back burning operations to minimize the fire intensity at the development interface.

The bushfire hazard potentially impacting the proposed subdivision is not considered to be high risk given it is predominantly freshwater wetland and grassland. These vegetation types and the limited size of the hazard will not have significantly sustained fire fronts and will unlikely require back burning.

Further, the direct fire run backing on to the development is approximately 100-150m in length at the widest points and is disconnected from the primary hazard further to the west. The growth stage through the treed area from a point ignition

will limit the intensity of the bushfire at the development interface. Therefore, the likely need to back burn or undertaken hazard reduction with this size and type of hazard is negligible. It is also noted, although freshwater wetlands can dry out the likelihood of reaching a curing point as outlined in PBP2006 methodology is less than any other vegetation type given the catchment area.

There is a small area (0.4ha) of forested wetland in the central portion of the conservation zone however it is not considered to be the most dominant vegetation to influence bushfire behaviour at the APZ interface. This area is remnant in size, it being noted that remnant APZs are less than that for freshwater wetlands pursuant to Appendix 2 PBP2006

It is noted that the consent authority is required to have consideration to s142 Local Government Regulation for a house fire event and in this regard the required specification for this consideration will allow adequate fire brigade intervention.

It is therefore considered that a perimeter road in the location of Super Lot 5 is not required to meet the objectives of s4.1.3 PBP2006 and the aim of PBP2006 which is to “minimise impacts on property from the threat of bush fire, while having due regard to development potential, on-site amenity and protection of the environment”.

8.0 LANDSCAPING

The majority of buildings adversely impacted upon in a bushfire event happen through ember attack and in this regard combustible material surrounding the buildings e.g. landscaping, can play a significant part during the event. Adequate management of landscaping is critical to the survivability of an asset and for occupant safety during a bushfire.

It is recommended that landscaping is undertaken in accordance Appendix 5 of Planning for Bushfire Protection 2006 and managed and maintained for the life of the development.

9.0 CONCLUSION

This assessment demonstrates that whilst requirements of Planning for Bushfire Protection 2006 do not apply directly given that the proposed buildings which are not located on bushfire prone land consideration has been given to PBP2006 pursuant to an assessment against s4.15 of the Environmental Planning and Assessment Act 1979.

The recommendations in the executive summary of this report have been provided in consultation with the NSW RFS and are considered to be compliant with the performance criteria of Planning for Bushfire Protection 2006 based on the future hazard as described.

DISCLAIMER

This report was prepared for the purposes and exclusive use of the stated client to accompany an application to Ballina Shire Council for a proposed residential subdivision and is not to be used for any other purpose or by any other person or Corporation. BCA Check Pty Ltd accepts no responsibility for any loss or damage suffered howsoever arising to any person or Corporation who may use or rely on this report in contravention of the terms of this clause.

Reporting has been based on the relevant Council and Rural Fire Service Guidelines, however, recommendations given in this report are based on our site investigation at the time of reporting. In some cases site conditions may change dramatically within a few years due to rapid vegetation re-growth and invading weed species.

The report has been established to reduce the risk of ignition to the building and to promote occupant safety and this is dependent on the property and structure being maintained in perpetuity to the recommendations in this report and the standards of Planning for Bushfire Protection 2006. It is noted however that the report and the recommendations within cannot and do not propose that the building or occupants will not be adversely impacted upon given that bushfire is a natural phenomenon and cannot fully be predicted as can occupant behavior.

REFERENCES

ABCB, (2016), The Building Code of Australia, *Australian Building Codes Board Canberra*, Volume 2.

NSW Rural Fire Service and Planning NSW (2006), *Planning for bushfire protection, A guide for councils planners fire authorities developers and homeowners*. Rural Fire Service NSW Australia.

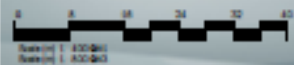
Standards Australia, (2009), AS3959 *Construction of buildings in bushfire prone areas*, Australian Standards, Sydney.

LEGISLATION

Environmental Planning and Assessment Act 1979 and Regulations 2000. *New South Wales*. Parliamentary Counsel's Office, NSW Government Information Service.

APPENDIX A: Proposed Subdivision Plans

SNAPPER DRIVE



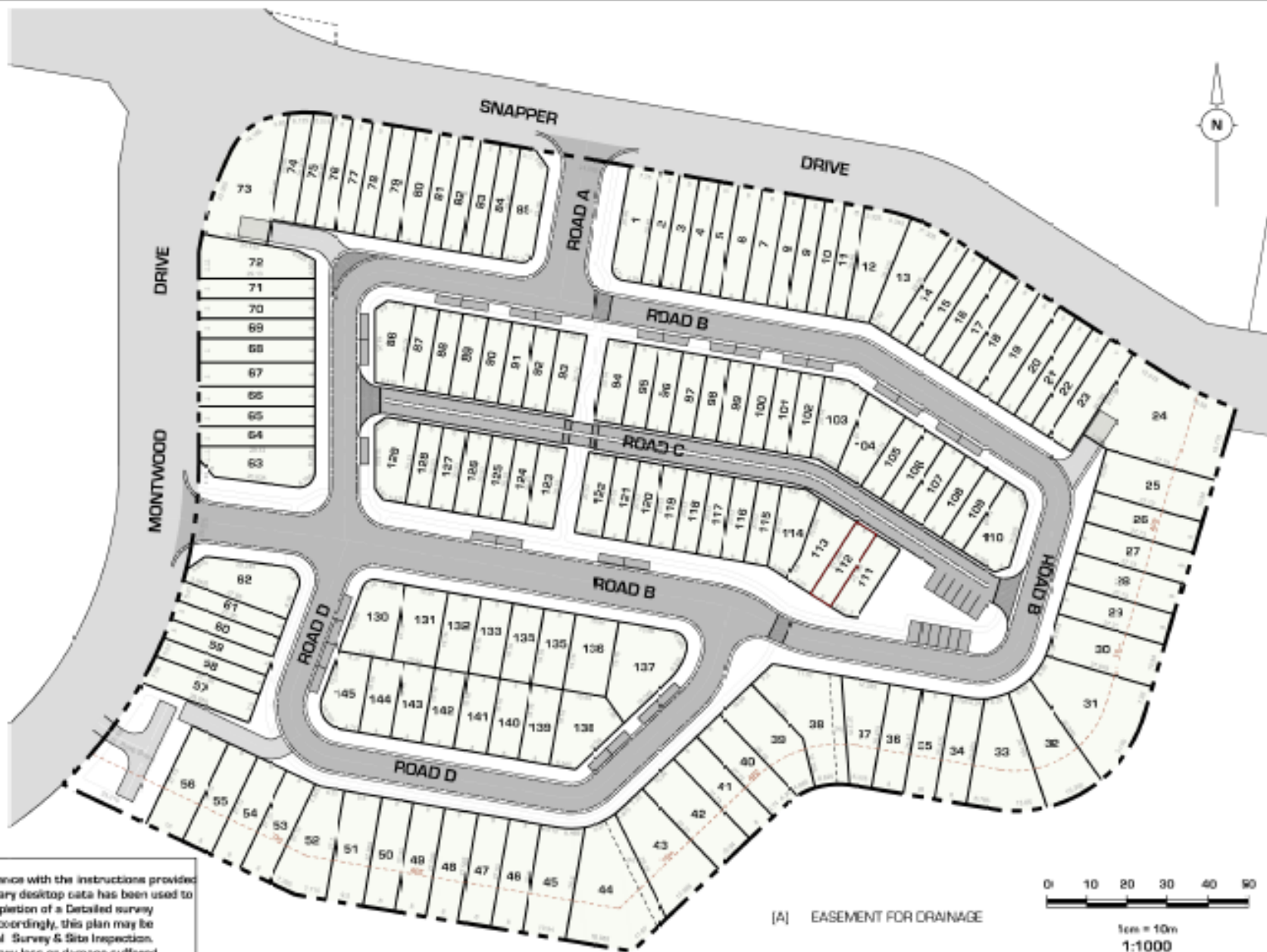
Terrace Homes Development
EPIC - Lennar Florida

Site Plan
6661.15.02.0



LOT AREA TABLE					
Lot No.	Area m ²	Lot No.	Area m ²	Lot No.	Area m ²
1	218.6	51	263.0	101	124.4
2	142.3	52	309.9	102	124.4
3	142.3	53	217.0	103	200.1
4	142.3	54	217.0	104	180.0
5	142.3	55	217.0	105	124.4
6	170.7	56	271.3	106	124.4
7	170.7	57	211.0	107	124.4
8	142.3	58	137.6	108	124.4
9	142.3	59	136.4	109	124.4
10	142.3	60	136.4	110	201.8
11	142.3	61	137.6	111	148.2
12	255.5	62	271.6	112	128.4
13	248.7	63	249.2	113	181.5
14	145.3	64	145.6	114	178.9
15	145.3	65	145.6	115	123.2
16	145.3	66	145.6	116	123.2
17	145.3	67	174.8	117	123.2
18	174.4	68	174.8	118	123.2
19	174.4	69	145.6	119	123.2
20	145.3	70	145.6	120	123.2
21	145.3	71	145.6	121	123.2
22	145.3	72	249.5	122	144.2
23	203.4	73	431.5	123	144.2
24	672.4	74	198.0	124	123.2
25	303.4	75	141.9	125	123.2
26	221.8	76	142.3	126	123.2
27	221.8	77	142.3	127	123.2
28	221.8	78	142.3	128	123.2
29	221.8	79	170.7	129	182.0
30	393.5	80	170.7	130	222.1
31	499.89	81	142.3	131	209.6
32	334.8	82	142.3	132	153.3
33	377.2	83	142.3	133	153.3
34	211.9	84	142.3	134	153.3
35	211.5	85	211.2	135	153.3
36	211.7	86	174.2	136	209.6
37	237.9	87	124.4	137	320.8
38	414.9	88	124.4	138	233.7
39	286.7	89	124.4	139	153.3
40	222.5	90	124.4	140	153.3
41	221.8	91	124.4	141	153.3
42	393.4	92	124.4	142	153.3
43	377.5	93	145.7	143	153.3
44	543.0	94	145.7	144	153.3
45	393.0	95	124.4	145	182.7
46	228.1	96	124.4		
47	228.4	97	124.4		
48	228.6	98	124.4		
49	228.9	99	124.4		
50	221.2	100	124.4		

This preliminary layout has been completed in accordance with the instructions provided by Westlawn Property Trust. In this respect preliminary desktop data has been used to form this layout. The final layout is subject to the completion of a detailed survey Subdivision Survey Plans and/or Engineering plans. Accordingly, this plan may be modified by the author upon the completion of the final Survey & Site Inspection. Newton Dierney Chapelle accepts no responsibility for any loss or damage suffered, however so arising, to any person or corporation who rely upon or rely on this Plan.



REV	DATE	AMENDMENT
A	05.00.10	
B	10.00.10	LOT 111 REMOVED. LOT 100 REMAINS 1-F, 1-60 ACRES, LOT 100 REMAINS
C		
D		
E		

SOURCE PLAN: n/a

81-0961 2014X 74351 - clearance property; search 81 planning clearing plan's approval; 74351 - proposed subdivision map - also 8

Newton Denny Chapelle
Surveyors Planners Engineers
Email: office@newtandennychapelle.com
JANMORE 311 Corrington St., Lenoir 24620 PH: 952-1
CARRING 100 Barker St., Greene 24710
PH: 952-1 5000
AOL: 84 220 045 465

PLAN 2- PROPOSED SUBDIVISION
CLIENT: WESTLAWN PROPERTY TRUST
LOCATION: EPIG HUTLEY DRIVE
LENNIX HEAD NSW
DATE: 15.08.18 REF: 14/351
SCALE: 1:1000 DRAWN: bk



APPENDIX B: Excerpts from Vegetation Monitoring Report, dated 14.09.2015

Vegetation Monitoring Report: August 2015

Epiq Lennox



GeoLINK
environmental management and design

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PO Box 1446
Coffs Harbour NSW 2450
T 02 6651 7666

PO Box 1267
Armidale NSW 2350
T 0488 677 666

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info@geolink.net.au

Prepared for: Clarence Property Corp
© GeoLINK, 2015

<i>UPR</i>	<i>Description</i>	<i>Date Issued</i>	<i>Issued By</i>
1675-1387	First issue	14/09/2015	VJS

In addition to this data, the following specific data will be collected for HJG and SSSR (when present):

- Foliage vigour within the quadrat using the following scoring method (*1-dead, 2-poor condition/ discoloured, 3-minor discoloration, 4-good condition, 5-excellent condition*).
- Photographs of example HJG and SSSR individuals within the quadrat.

2.4 Translocation Areas for HJG and SSSR

Baseline data for translocated areas of HJG/ SSSR will be collected during the peak growth period (February to May) two years after translocation to allow for establishment. All subsequent monitoring of the success of translocation will be based on this baseline cover level measured at this point. Therefore, this data was not collected as part of the current monitoring event.

HJG translocation (seed collection and direct seeding) within the Conservation Zone was undertaken in the period of May to July 2015. SSSR translocation (collection and division of propagules for SSSR translocation) within the Conservation Zone has been undertaken and planting of propagules will be undertaken later in 2015 when propagules have matured and are ready for planting.

Monitoring sites for collection of this baseline data were established randomly in representative translocation areas (refer to **Illustration 2.1**). Monitoring will be conducted along (10 m x 2 m) belt transects, containing 20 x 1 m x 1 m quadrats laid out contiguously, with ten quadrats on either side of a centre line. Data collection will follow the methodology outlined for monitoring of treeless vegetation in **Section 2.2.3**.

2.5 Mapping of HJG and SSSR Distribution and Freshwater Wetlands EEC

Collection of pre-construction baseline data mapping the distribution of HJG and SSSR and the Freshwater EEC boundary within the Conservation Zone was collected in 2011 and not collected for the current monitoring event. The first post-construction mapping of the distribution of HJG, SSSR and the Freshwater Wetland within the Conservation Zone is scheduled to occur in the peak growth season for these species in February to May 2016.

The mapping methodology is as follows:

- **HJG and SSSR distribution:**
 - Line transects 5 m apart were walked within the Conservation Zone, with all locations of SSSR and HJG marked with a GPS. Where larger areas of HJG and SSSR were encountered, GPS points were taken every 2-3 m to allow for the distribution of occurrences to be identified. A GIS map layer of the distribution of threatened species within the Conservation Zone was generated.
- **Freshwater wetlands EEC boundary:**
 - Mapping of the boundary of the Freshwater Wetlands EEC within the Conservation Zone was undertaken by on ground tracking of the location of the boundary with a GPS. This was supplemented by aerial photograph interpretation of the area. A GIS map layer of the location of the boundary was generated.

2.6 Weeds

A pre-construction weed audit was undertaken in March 2015 across the site to inform weed control priorities, map infestations and to identify any new infestations of noxious and environmental weeds. This will be conducted prior to construction commencing and then annually thereafter.

In addition to the weed audit data collected, the density of weeds within monitoring quadrats/ transects was also collected to provide more detailed information on weed infestations occurring at the site.

The extent of these weed infestations was recorded with a GPS and a simple map showing the locations of priority weeds was prepared.

2.7 Revegetation Areas

Monitoring data was collected on the state of the revegetation areas in June 2015 to provide information on the current success of the revegetation plantings. Information collected was qualitative and consisted of information such as the health of plants, evidence of damage or death of plants, the need to replace tree guards or mulch, and the degree of weed infestation. This data will feed into maintenance requirements for the revegetation areas, including weed control and replacement plantings.



Location of Monitoring Quadrats and Transects

Epiq Lennox Vegetation Monitoring Report: August 2015

Illustration





Plate 3.9 Transect 1 – Photo point

3.2.2 Transect 2 – Freshwater Wetlands EEC with HJG/ SSSR

Transect 2 is located at 557077: 6812778 (transect start); 557084: 6812782 (transect end) (GDA 94, Zone 56) (refer to **Illustration 2.1** and **Plate 3.10**) and monitors existing area of Freshwater Wetlands EEC and HJG/ SSSR within the Conservation Zone.

Table 3.31 Transect 2 – Flora Species Cover

Quadrat	Common Name	Scientific Name	Cover %	Height (m)	Reproduction	Foliage Vigour (class)
A	Vasey Grass*	<i>Paspalum urvelli</i>	5	0.4	n/a	n/a
	-	<i>Commelina</i> sp.	5	0.2	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	70	0.4	n/a	n/a
	Spotted Knotweed	<i>Persicaria decipiens</i>	10	0.4	n/a	n/a
	Sida*	<i>Sida rhombifolia</i>	5	0.4	n/a	n/a
	Farmer's Friend*	<i>Bidens pilosa</i>	5	0.3	n/a	n/a
	Austral Bracken	<i>Pteridium esculentum</i>	5	0.1	n/a	n/a
	Swamp Foxtail	<i>Pennisetum alopecuroides</i>	5	1.1	n/a	n/a

Quadrat	Common Name	Scientific Name	Cover %	Height (m)	Reproduction	Foliage Vigour (class)
E	Flax-leaf Fleabane*	<i>Conyza bonariensis</i>	5	0.4	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	35	0.5	seeding heavily	4
	-	<i>Fimbrostylis</i> sp.	5	0.4	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	Spotted Knotweed	<i>Persicaria strigosa</i>	5	0.3	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	5	0.7	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	70	0.6	n/a	n/a
	Swamp Foxtail	<i>Pennisetum alopecuroides</i>	5	1.1	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.2	n/a	n/a
F	Farmer's Friend*	<i>Bidens pilosa</i>	5	0.2	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	10	0.5	seeding	4
	Swamp Ricegrass	<i>Leersia hexandra</i>	65	0.3	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	5	0.7	n/a	n/a
	Farmer's Friend*	<i>Bidens pilosa</i>	5	0.1	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.2	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	10	0.4	seeding heavily	3
	a Clover*	<i>Trifolium</i> sp.	5	0.1	n/a	n/a
	Sow Thistle*	<i>Sonchus oleraceus</i>	5	0.3	n/a	n/a
G	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	70	0.6	n/a	n/a
	-	<i>Fimbrostylis</i> sp.	5	0.5	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	5	0.9	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	5	0.5	seeding	4
	Swamp Ricegrass	<i>Leersia hexandra</i>	75	0.5	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	75	0.5	n/a	n/a

Quadrat	Common Name	Scientific Name	Cover %	Height (m)	Reproduction	Foliage Vigour (class)
I	Vasey Grass*	<i>Paspalum urvelli</i>	5	0.9	n/a	n/a
	Flax-leaf Fleabane*	<i>Conyza bonariensis</i>	5	0.7	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.1	n/a	n/a
	Sow Thistle*	<i>Sonchus oleraceus</i>	5	0.1	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	5	0.3	seeding	4
	Square-stemmed Spike-rush^	<i>Eleocharis tetraquetra</i>	5 (1 stem)	0.4	seeding	4
	Swamp Foxtail	<i>Leersia hexandra</i>	75	0.5	n/a	n/a
J	Vasey Grass*	<i>Paspalum urvelli</i>	10	0.8	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	a Clover*	<i>Trifolium</i> sp.	5	0.1	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.1	n/a	n/a
	Common Spike-rush	<i>Eleocharis equisetina</i>	5	0.3	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	5	0.3	seeding	4
	Square-stemmed Spike-rush^	<i>Eleocharis tetraquetra</i>	5	0.4	seeding	4
	Vasey Grass*	<i>Paspalum urvelli</i>	5	1.1	n/a	n/a
K	Swamp Ricegrass	<i>Leersia hexandra</i>	75	0.7	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	Farmer's Friend*	<i>Bidens pilosa</i>	5	0.1	n/a	n/a
	a Clover*	<i>Trifolium</i> sp.	5	0.1	n/a	n/a
	Common Spike-rush	<i>Eleocharis equisetina</i>	5	0.2	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	5	0.2	seeding	4
	Swamp Ricegrass	<i>Leersia hexandra</i>	60	0.5	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	10	0.9	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a

Quadrat	Common Name	Scientific Name	Cover %	Height (m)	Reproduction	Foliage Vigour (class)
L	a Sedge	<i>Cyperus</i> sp.	5	0.2	n/a	n/a
	Hairy Joint-grass ^A	<i>Arthraxon hispidus</i>	5	0.4	seeding	4
	Vasey Grass*	<i>Paspalum urvelli</i>	15	1.2	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	65	0.5	n/a	n/a
	Farmer's Friend*	<i>Bidens pilosa</i>	5	0.2	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.1	n/a	n/a
	a Clover*	<i>Trifolium</i> sp.	5	0.1	n/a	n/a
M	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	85	0.5	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	10	0.8	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.3	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
N	Hairy Joint-grass ^A	<i>Arthraxon hispidus</i>	5	0.3	seeding	4
	Sow Thistle *	<i>Sonchus oleraceus</i>	5	0.2	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	70	0.4	n/a	n/a
	Spotted Knotweed	<i>Persicaria strigosa</i>	5	0.2	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	5	1	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.2	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	Gotu Cola	<i>Centella asiatica</i>	5	0.1	n/a	n/a
O	Hairy Joint-grass ^A	<i>Arthraxon hispidus</i>	15	0.3	seeding heavily	4
	Swamp Ricegrass	<i>Leersia hexandra</i>	65	0.2	n/a	n/a
	-	<i>Fimbristylis</i> sp.	5	0.4	n/a	n/a
	Spotted Knotweed	<i>Persicaria strigosa</i>	5	0.2	n/a	n/a
	a Clover*	<i>Trifolium</i> sp.	5	0.1	n/a	n/a
	-	<i>Commelina</i> sp.	5	0.1	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	5	0.8	n/a	n/a
	Hairy Joint-grass ^A	<i>Arthraxon hispidus</i>	10	0.4	seeding	4

Quadrat	Common Name	Scientific Name	Cover %	Height (m)	Reproduction	Foliage Vigour (class)
P	Swamp Foxtail	<i>Pennisetum alopecuroides</i>	5	1	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	70	0.4	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	5	0.9	n/a	n/a
	Austral Bracken	<i>Pteridium esculentum</i>	5	0.2	n/a	n/a
	Spotted Knotweed	<i>Persicaria strigosa</i>	5	0.2	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.2	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	20	0.4	seeding heavily	4
Q	Austral Bracken	<i>Pteridium esculentum</i>	5	0.1	n/a	n/a
	Spotted Knotweed	<i>Persicaria strigosa</i>	5	0.2	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	60	0.5	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	10	1.1	n/a	n/a
	Sida	<i>Sida rhombifolia</i>	5	0.2	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.1	n/a	n/a
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
	a Clover*	<i>Trifolium</i> sp.	5	0.1	n/a	n/a
R	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	30	0.4	seeding heavily	4
	Swamp Ricegrass	<i>Leersia hexandra</i>	65	0.5	n/a	n/a
	Swamp Foxtail	<i>Pennisetum alopecuroides</i>	5	1	n/a	n/a
	Austral Bracken	<i>Pteridium esculentum</i>	5	0.2	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	10	1	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	2	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	25	0.4	seeding	4
	a Sedge	<i>Cyperus</i> sp.	5	0.2	n/a	n/a
S	Spotted Knotweed	<i>Persicaria decipiens</i>	10	0.5	n/a	n/a
	Farmer's Friend*	<i>Bidens pilosa</i>	5	0.2	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	5	1	n/a	n/a

Quadrat	Common Name	Scientific Name	Cover %	Height (m)	Reproduction	Foliage Vigour (class)
T	Gotu Cola	<i>Centella asiatica</i>	5	0.1	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	70	0.4	n/a	n/a
	Austral Bracken	<i>Pteridium esculentum</i>	5	0.1	n/a	n/a
	Hairy Joint-grass ^A	<i>Arthraxon hispidus</i>	20	0.3	seeding	4
	Spotted Knotweed	<i>Persicaria decipiens</i>	5	0.4	n/a	n/a
	Swamp Ricegrass	<i>Leersia hexandra</i>	65	0.4	n/a	n/a
	Swamp Foxtail	<i>Pennisetum alopecuroides</i>	10	0.4	n/a	n/a
	Austral Bracken	<i>Pteridium esculentum</i>	5	0.2	n/a	n/a
	Gotu Cola	<i>Centella asiatica</i>	5	0.1	n/a	n/a
	Farmer's Friend*	<i>Bidens pilosa</i>	5	0.1	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	5	0.5	n/a	n/a
	Hairy Joint-grass ^A	<i>Arthraxon hispidus</i>	5	0.3	seeding	4

* Exotic species or invasive native species

^A Threatened flora species listed under the TSC Act and/ or the EPBC Act

3.2.2.1 General comments

- Presence of dead plants: nothing of significance.
- Regeneration of HJG and SSSR: refer to **Table 3.31**.
- Degree of weed infestation: (moderate weed infestation – particularly weed grasses).
- Condition/ health of community: this area of vegetation has undergone moderate past disturbance (e.g. cattle grazing) and is currently in medium condition (moderate weed infestation – particularly weed grasses).
- Presence of threatened flora: HJG and SSSR.



Plate 3.10 Transect 2 – Photo point

3.2.3 Transect 3 – Freshwater Wetlands EEC with HJG/ SSSR

Transect 2 is located at 557377: 6812943 (transect start); 557371: 6812953 (transect end) (GDA 94, Zone 56) (refer to **Illustration 2.1** and **Plate 3.11**) and monitors existing area of Freshwater Wetlands EEC and HJG/ SSSR within the Conservation Zone.

Table 3.32 Transect 3 – Flora Species Cover

Quadrat	Common Name	Scientific Name	Cover %	Height (m)	Reproduction	Foliage Vigour (class)
A	Swamp Ricegrass	<i>Leersia hexandra</i>	60	0.3	n/a	n/a
	Vasey Grass*	<i>Paspalum urvelli</i>	15	1.1	n/a	n/a
	Fireweed*	<i>Senecio madagascariensis</i>	5	0.3	n/a	n/a
	a Sedge	<i>Cyperus</i> sp.	5	0.2	n/a	n/a
	Common Spike-rush	<i>Eleocharis equisetina</i>	5	0.2	n/a	n/a
	Hairy Joint-grass^	<i>Arthraxon hispidus</i>	20	0.3	seeding	3
	Swamp Buttercup	<i>Ranunculus undosus</i>	5	0.1	n/a	n/a
B	Vasey Grass*	<i>Paspalum urvelli</i>	10	1	n/a	n/a
	Sow Thistle*	<i>Sonchus oleraceus</i>	5	0.2	n/a	n/a

APPENDIX C: Standards for Asset Protection Zones (RFS 2005)

for asset protection zones

protection

NSW RURAL FIRE SERVICE



STANDARDS FOR ASSET PROTECTION ZONES

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INTRODUCTION

For thousands of years bush fires have been a natural part of the Australian landscape. They are inevitable and essential, as many Australian plants and animals have adapted to fire as part of their life cycle.

In recent years developments in bushland areas have increased the risk of bush fires harming people and their homes and property. But landowners can significantly reduce the impact of bush fires on their property by identifying and minimising bush fire hazards. There are a number of ways to reduce the level of hazard to your property, but one of the most important is the creation and maintenance of an Asset Protection Zone (APZ).

A well located and maintained APZ should be used in conjunction with other preparations such as good property maintenance, appropriate building materials and developing a family action plan.

WHAT IS AN ASSET PROTECTION ZONE?

An Asset Protection Zone (APZ) is a fuel reduced area surrounding a built asset or structure. This can include any residential building or major building such as farm and machinery sheds, or industrial, commercial or heritage buildings.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows suppression of fire;
- an area from which backburning may be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Potential bush fire fuels should be minimised within an APZ. This is so that the vegetation within the planned zone does not provide a path for the transfer of fire to the asset either from the ground level or through the tree canopy.

WHAT WILL THE APZ DO?

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- direct flame contact on the asset;
- damage to the built asset from intense radiant heat; and
- ember attack on the asset.

WHERE SHOULD I PUT AN APZ?

An APZ is located between an asset and a bush fire hazard.

The APZ should be located wholly within your land. You cannot undertake any clearing of vegetation on a neighbour's property, including National Park estate, Crown land or land under the management of your local council, unless you have written approval.

If you believe that the land adjacent to your property is a bush fire hazard and should be part of an APZ, you can have the matter investigated by contacting the NSW Rural Fire Service (RFS).

There are six steps to creating and maintaining an APZ. These are:

1. Determine if an APZ is required;
2. Determine what approvals are required for constructing your APZ;
3. Determine the APZ width required;
4. Determine what hazard reduction method is required to reduce bush fire fuel in your APZ;
5. Take measures to prevent soil erosion in your APZ; and
6. Landscape and regularly monitor in your APZ for fuel regrowth.

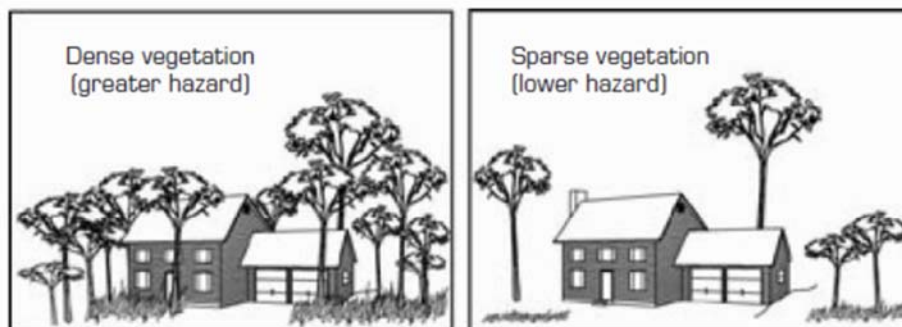
STEP 1. DETERMINE IF AN APZ IS REQUIRED

Recognising that a bush fire hazard exists is the first step in developing an APZ for your property.

If you have vegetation close to your asset and you live in a bush fire prone or high risk area, you should consider creating and maintaining an APZ.

Generally, the more flammable and dense the vegetation, the greater the hazard will be. However, the hazard potential is also influenced by factors such as slope.

- A large area of continuous vegetation on sloping land may increase the potential bush fire hazard.
- The amount of vegetation around a house will influence the intensity and severity of a bush fire.
- The higher the available fuel the more intense a fire will be.



Isolated areas of vegetation are generally not a bush fire hazard, as they are not large enough to produce fire of an intensity that will threaten dwellings.

This includes:

- bushland areas of less than one hectare that are isolated from large bushland areas; and
- narrow strips of vegetation along road and river corridors.

If you are not sure if there is a bush fire hazard in or around your property, contact your local NSW Rural Fire Service Fire Control Centre or your local council for advice.

STEP 2. DETERMINE WHAT APPROVALS ARE REQUIRED FOR CONSTRUCTING YOUR APZ

If you intend to undertake bush fire hazard reduction works to create or maintain an APZ you must gain the written consent of the landowner.

Subdivided land or construction of a new dwelling

If you are constructing an APZ for a new dwelling you will need to comply with the requirements in *Planning for Bushfire Protection*. Any approvals required will have to be obtained as part of the Development Application process.

Existing asset

If you wish to create or maintain an APZ for an existing structure you may need to obtain an environmental approval. The RFS offers a free environmental assessment and certificate issuing service for essential hazard reduction works. For more information see the RFS document *Application Instructions for a Bush Fire Hazard Reduction Certificate* or contact your local RFS Fire Control Centre to determine if you can use this approval process.

Bear in mind that all work undertaken must be consistent with any existing land management agreements (e.g. a conservation agreement, or property vegetation plan) entered into by the property owner.

If your current development consent provides for an APZ, you do not need further approvals for works that are consistent with this consent.

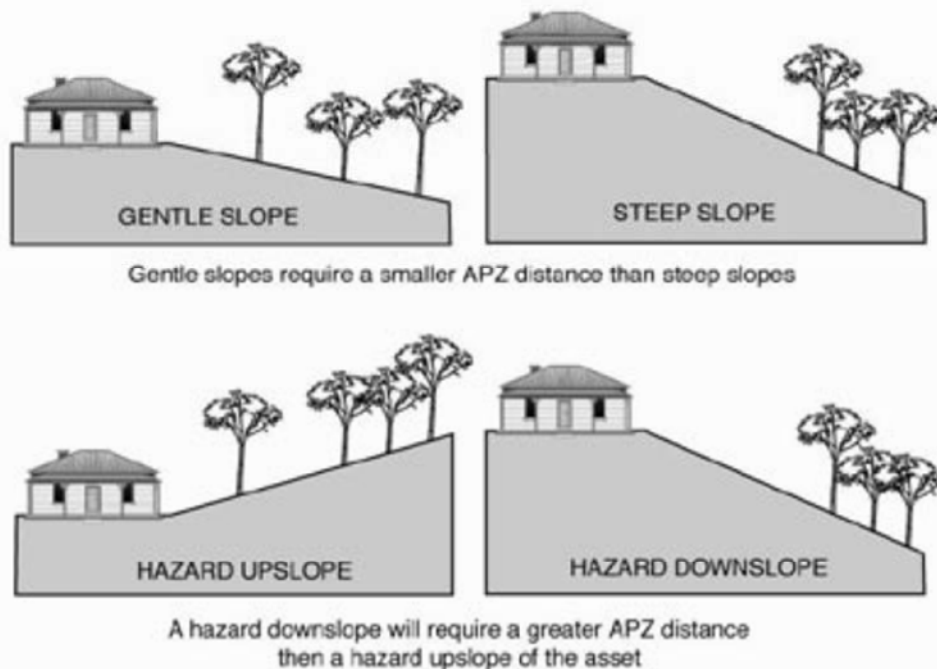
If you intend to burn off to reduce fuel levels on your property you may also need to obtain a Fire Permit through the RFS or NSW Fire Brigades. See the RFS document *Before You Light That Fire* for an explanation of when a permit is required.

STEP 3. DETERMINE THE APZ WIDTH

The size of the APZ required around your asset depends on the nature of the asset, the slope of the area, the type and structure of nearby vegetation and whether the vegetation is managed.

Fires burn faster uphill than downhill, so the APZ will need to be larger if the hazard is downslope of the asset.

5



Different types of vegetation (for example, forests, rainforests, woodlands, grasslands) behave differently during a bush fire. For example, a forest with shrubby understorey is likely to result in a higher intensity fire than a woodland with a grassy understorey and would therefore require a greater APZ width.

A key benefit of an APZ is that it reduces radiant heat and the potential for direct flame contact on homes and other buildings. Residential dwellings require a wider APZ than sheds or stockyards because the dwelling is more likely to be used as a refuge during bush fire.

Subdivided land or construction of a new dwelling

If you are constructing a new asset, the principles of *Planning for Bushfire Protection* should be applied. Your Development Application approval will detail the exact APZ distance required.

Existing asset

If you wish to create an APZ around an existing asset and you require environmental approval, the Bush Fire Environmental Assessment Code provides a streamlined assessment process. Your Bush Fire Hazard Reduction Certificate (or alternate environmental approval) will specify the maximum APZ width allowed.

For further information on APZ widths see *Planning for Bushfire Protection* or the *Bush Fire Environmental Assessment Code* (available on the RFS website), or contact your local RFS Fire Control Centre.

STEP 4. DETERMINE WHAT HAZARD REDUCTION METHOD IS REQUIRED TO REDUCE BUSH FIRE FUEL IN YOUR APZ

The intensity of bush fires can be greatly reduced where there is little to no available fuel for burning. In order to control bush fire fuels you can reduce, remove or change the state of the fuel through several means.

Reduction of fuel does not require removal of all vegetation, which would cause environmental damage. Also, trees and plants can provide you with some bush fire protection from strong winds, intense heat and flying embers (by filtering embers) and changing wind patterns. Some ground cover is also needed to prevent soil erosion.

Fuels can be controlled by:

1. raking or manual removal of fine fuels

Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis. This is fuel that burns quickly and increases the intensity of a fire.

Fine fuels can be removed by hand or with tools such as rakes, hoes and shovels.

2. mowing or grazing of grass

Grass needs to be kept short and, where possible, green.

3. removal or pruning of trees, shrubs and understorey

The control of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation.

Prune or remove trees so that you do not have a continuous tree canopy leading from the hazard to the asset. Separate tree crowns by two to five metres. A canopy should not overhang within two to five metres of a dwelling.

Native trees and shrubs should be retained as clumps or islands and should maintain a covering of no more than 20% of the area.

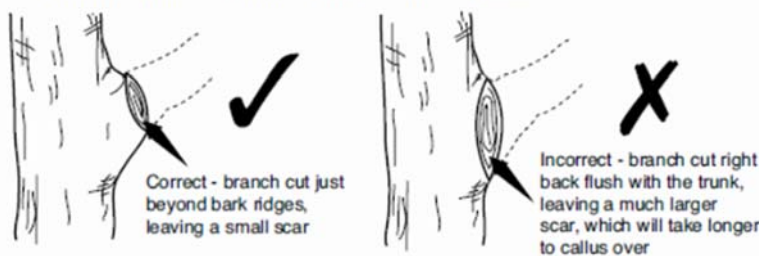
When choosing plants for removal, the following basic rules should be followed:

1. Remove noxious and environmental weeds first. Your local council can provide you with a list of environmental weeds or 'undesirable species'. Alternatively, a list of noxious weeds can be obtained at www.agric.nsw.gov.au/noxweed/;
2. Remove more flammable species such as those with rough, flaky or stringy bark; and
3. Remove or thin understorey plants, trees and shrubs less than three metres in height

The removal of significant native species should be avoided.

Prune in accordance with the following standards:

- Use sharp tools. These will enable clean cuts and will minimise damage to the tree.
- Decide which branches are to be removed before commencing work. Ensure that you maintain a balanced, natural distribution of foliage and branches.
- Remove only what is necessary.
- Cut branches just beyond bark ridges, leaving a small scar.
- Remove smaller branches and deadwood first.



There are three primary methods of pruning trees in APZs:

1. Crown lifting (skirting)

Remove the lowest branches (up to two metres from the ground). Crown lifting may inhibit the transfer of fire between the ground fuel and the tree canopy.

2. Thinning

Remove smaller secondary branches whilst retaining the main structural branches of the tree. Thinning may minimise the intensity of a fire.

3. Selective pruning

Remove branches that are specifically identified as creating a bush fire hazard (such as those overhanging assets or those which create a continuous tree canopy). Selective pruning can be used to prevent direct flame contact between trees and assets.

Your Bush Fire Hazard Reduction Certificate or local council may restrict the amount or method of pruning allowed in your APZ.

See the *Australian Standard 4373 (Pruning of Amenity Trees)* for more information on tree pruning.

4. Slashing and trittering

Slashing and trittering are economical methods of fuel reduction for large APZs that have good access. However, these methods may leave large amounts of slashed fuels (grass clippings etc) which, when dry, may become a fire hazard. For slashing or trittering to be effective, the cut material must be removed or allowed to decompose well before summer starts.

If clippings are removed, dispose of them in a green waste bin if available or compost on site (dumping clippings in the bush is illegal and it increases the bush fire hazard on your or your neighbour's property).

Although slashing and trittering are effective in inhibiting the growth of weeds, it is preferable that weeds are completely removed.

Care must be taken not to leave sharp stakes and stumps that may be a safety hazard.

5. Ploughing and grading

Ploughing and grading can produce effective firebreaks. However, in areas where this method is applied, frequent maintenance may be required to minimise the potential for erosion. Loose soil from ploughed or graded ground may erode in steep areas, particularly where there is high rainfall and strong winds.

6. Burning (hazard reduction burning)

Hazard reduction burning is a method of removing ground litter and fine fuels by fire. Hazard reduction burning of vegetation is often used by land management agencies for broad area bush fire control, or to provide a fuel reduced buffer around urban areas.

Any hazard reduction burning, including pile burns, must be planned carefully and carried out with extreme caution under correct weather conditions. Otherwise there is a real danger that the fire will become out of control. More bush fires result from escaped burning off work than from any other single cause.

It is YOUR responsibility to contain any fire lit on your property. If the fire escapes your property boundaries you may be liable for the damage it causes.

Hazard reduction burns must therefore be carefully planned to ensure that they are safe, controlled, effective and environmentally sound. There are many factors that need to be considered in a burn plan. These include smoke control, scorch height, frequency of burning and cut off points (or control lines) for the fire. For further information see the RFS document *Standards for Low Intensity Bush Fire Hazard Reduction Burning*, or contact your local RFS for advice.

7. Burning (pile burning)

In some cases, where fuel removal is impractical due to the terrain, or where material cannot be disposed of by the normal garbage collection or composted on site, you may use pile burning to dispose of material that has been removed in creating or maintaining an APZ.

For further information on pile burning, see the RFS document *Standards for Pile Burning*.

In areas where smoke regulations control burning in the open, you will need to obtain a Bush Fire Hazard Reduction Certificate or written approval from Council for burning. During the bush fire danger period a Fire Permit will also be required. See the RFS document *Before You Light that Fire* for further details.

STEP 5. TAKE MEASURES TO PREVENT SOIL EROSION

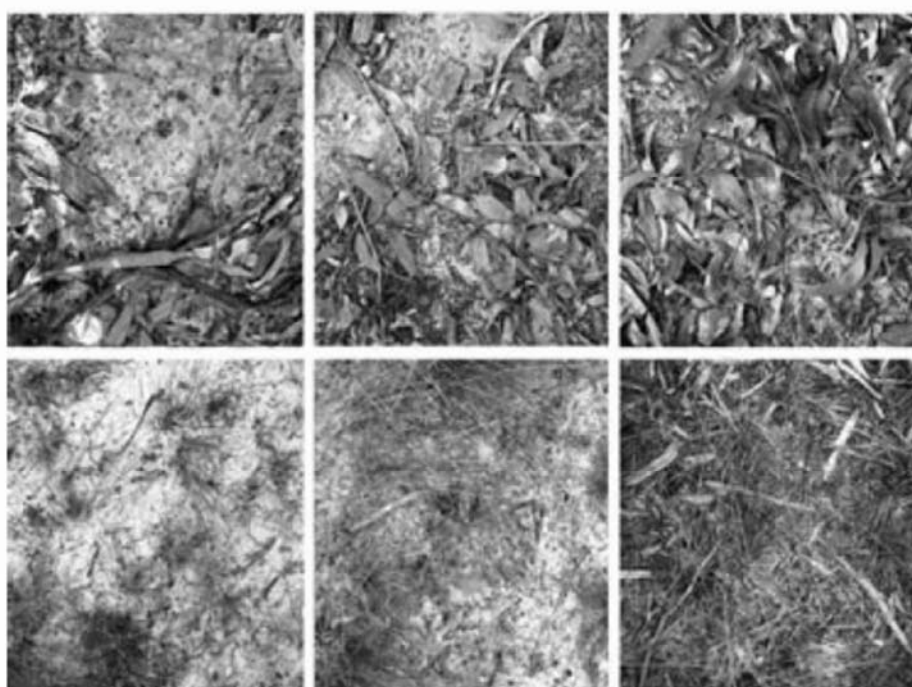
While the removal of fuel is necessary to reduce a bush fire hazard, you also need to consider soil stability, particularly on sloping areas.

Soil erosion can greatly reduce the quality of your land through:

- loss of top soil, nutrients, vegetation and seeds
- reduced soil structure, stability and quality
- blocking and polluting water courses and drainage lines

A small amount of ground cover can greatly improve soil stability and does not constitute a significant bush fire hazard. Ground cover includes any material which directly covers the soil surface such as vegetation, twigs, leaf litter, clippings or rocks. A permanent ground cover should be established (for example, short grass). This will provide an area that is easy to maintain and prevent soil erosion.

When using mechanical hazard reduction methods, you should retain a ground cover of at least 75% to prevent soil erosion. However, if your area is particularly susceptible to soil erosion, your Hazard Reduction Certificate may require that 90% ground cover be retained.



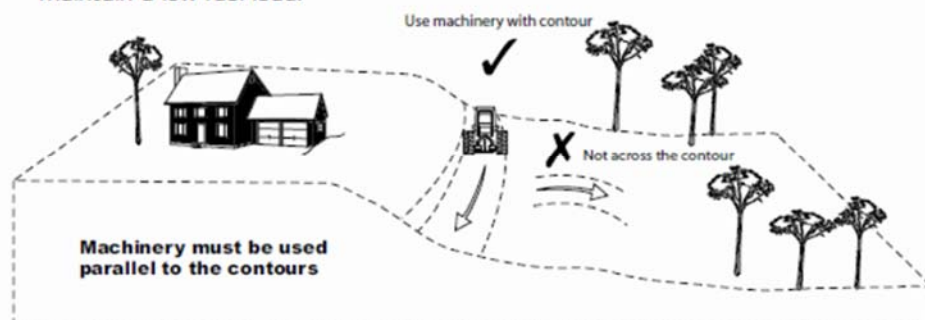
50%

75%

100%

Ground Cover

To reduce the incidence of soil erosion caused by the use of heavy machinery such as ploughs, dozers and graders, machinery must be used parallel to the contours. Vegetation should be allowed to regenerate, but be managed to maintain a low fuel load.



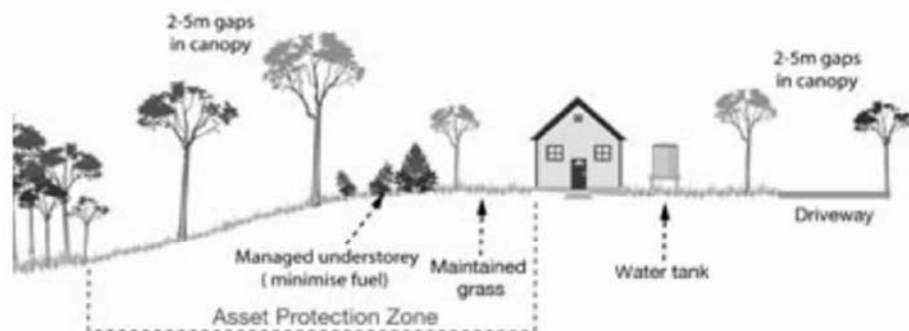
STEP 6. ONGOING MANAGEMENT AND LANDSCAPING

Your home and garden can blend with the natural environment and be landscaped to minimise the impact of fire at the same time. To provide an effective APZ, you need to plan the layout of your garden to include features such as fire resistant plants, radiant heat barriers and windbreaks.

Layout of gardens in an APZ

When creating and maintaining a garden that is part of an APZ you should:

- ensure that vegetation does not provide a continuous path to the house;
- remove all noxious and environmental weeds;
- plant or clear vegetation into clumps rather than continuous rows;
- prune low branches two metres from the ground to prevent a ground fire from spreading into trees;
- locate vegetation far enough away from the asset so that plants will not ignite the asset by direct flame contact or radiant heat emission;
- plant and maintain short green grass around the house as this will slow the fire and reduce fire intensity. Alternatively, provide non-flammable pathways directly around the dwelling;
- ensure that shrubs and other plants do not directly abut the dwelling. Where this does occur, gardens should contain low-flammability plants and non flammable ground cover such as pebbles and crush tile; and
- avoid erecting brush type fencing and planting "pencil pine" type trees next to buildings, as these are highly flammable.



Removal of other materials

Woodpiles, wooden sheds, combustible material, storage areas, large quantities of garden mulch, stacked flammable building materials etc. should be located away from the house. These items should preferably be located in a designated cleared location with no direct contact with bush fire hazard vegetation.

Other protective features

You can also take advantage of existing or proposed protective features such as fire trails, gravel paths, rows of trees, dams, creeks, swimming pools, tennis courts and vegetable gardens as part of the property's APZ.

PLANTS FOR BUSH FIRE PRONE GARDENS

When designing your garden it is important to consider the type of plant species and their flammability as well as their placement and arrangement.

Given the right conditions, all plants will burn. However, some plants are less flammable than others.

Trees with loose, fibrous or stringy bark should be avoided. These trees can easily ignite and encourage the ground fire to spread up to, and then through, the crown of the trees.

Plants that are less flammable, have the following features:

- high moisture content
- high levels of salt
- low volatile oil content of leaves
- smooth barks without "ribbons" hanging from branches or trunks; and
- dense crown and elevated branches.

When choosing less flammable plants, be sure not to introduce noxious or environmental weed species into your garden that can cause greater long-term environmental damage.

For further information on appropriate plant species for your locality, contact your local council, plant nurseries or plant society.

If you require information on how to care for fire damaged trees, refer to the Firewise brochure *Trees and Fire Resistance; Regeneration and care of fire damaged trees*.

WIND BREAKS

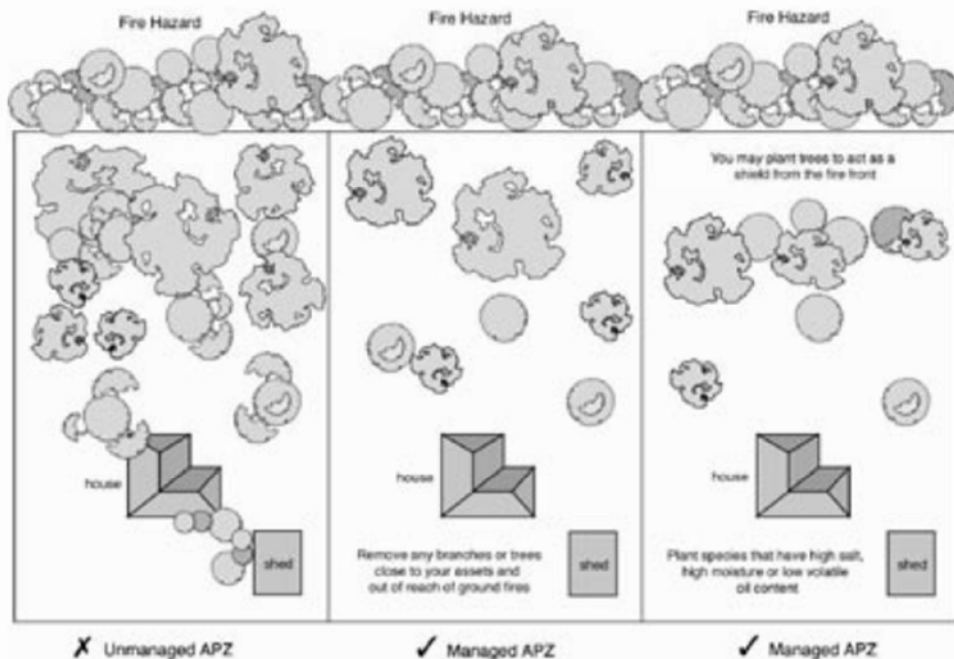
Rows of trees can provide a wind break to trap embers and flying debris that could otherwise reach the house or asset.

You need to be aware of local wind conditions associated with bush fires and position the wind break accordingly. Your local RFS Fire Control Centre can provide you with further advice.

When choosing trees and shrubs, make sure you seek advice as to their maximum height. Their height may vary depending on location of planting and local conditions. As a general rule, plant trees at the same distance away from the asset as their maximum height.

When creating a wind break, remember that the object is to slow the wind and to catch embers rather than trying to block the wind. In trying to block the wind, turbulence is created on both sides of the wind break making fire behaviour erratic.

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HOW CAN I FIND OUT MORE?

The following documents are available from your local Fire Control Centre and from the NSW RFS website at www.rfs.nsw.gov.au.

- Before You Light That Fire
- Standards for Low Intensity Bush Fire Hazard Reduction Burning
- Standards for Pile Burning
- Application Instructions for a Bush Fire Hazard Reduction Certificate

If you require any further information please contact:

- your local NSW Rural Fire Service Fire Control Centre.
Location details are available on the RFS website or
- call the NSW RFS Enquiry Line 1800 679 737
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DESIGN SPECIFICATION

INTEGRATED DEVELOPMENT

SUPER LOT 5

EPIQ ESTATE



REVISION C 09.07.2019

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INTRODUCTION

This Specification has been prepared to create a high quality, contemporary and environmentally sustainable built environment, which will underpin the value of Epiq as a desirable place to live.

This Design Specification provides the development of a 'beach' style architecture that is environmentally friendly emphasising a mixture of light weight materials such as timber, fibre cement and colorbond with a coastal colour palate, and the use of native plantings to attract bird life and reduce the need for watering.

The Specification explains the design 'intent' and subsequent "solution" applied to this integrated housing project.

These design specifications have been adopted for the site pursuant to the Part 3A approval application to EPIQ. As such, the prescriptive requirements of the Ballina Local Environmental Plan and Ballina Development Control Plan do not have effect where inconsistent with these specifications.

THE DESIGN

LEGISLATION

All care has been taken to ensure the Specification complies with current building legislation.

DESIGN & DOCUMENTATION

DESIGN PROCESS

TVS Architects has been engaged to develop this design specification.

SITE PLANNING

Dwellings are designed to respond to the natural characteristics of the site and surroundings. The design has considered:

- Orientation and prevailing breezes;
- Topographic characteristics and drainage lines;
- Points of access;
- Solar access;
- Views and vistas;
- The relationship to adjoining allotments (existing or proposed).

APPROVAL BY PRIVATE CERTIFIER

The developer shall seek approval to construct from a private certifier.

DRAWINGS FOR CONSTRUCTION

a) Site plan

All site plans are to be at a scale of 1:400 at A1 or 1:800 at A3 and must show the following minimum information:

- North point;
- Excavation, fill & finished ground levels;
- Retaining walls (location, extent and type);
- Driveway location, finish, and parking provisions;
- Fencing (extent, location); and
- All setbacks and the location of all buildings and structures on the land.

b) Floor plans

All floor plans are at a scale of 1:100 at A1 or 1:200 at A3 and show the following minimum information:

- Lot numbers
- Internal layouts of rooms, windows, openings;
- Extent of roof overhangs; and
- Dimensions.

c) Elevations and sections

All elevations are at a scale of 1:100 at A1 or 1:@200 at A3 and show the following minimum information:

- Existing natural and proposed ground level;
- Finished floor levels;
- Maximum building height extent;
- Roof form; and
- Material and colour selection (including external walls, roofing and fencing).

d) Street front fencing details

- Plans show stepped dimensions of planters;
- Top of wall heights per retaining wall; and
- Fencing (extent, location, height and type).

DWELLING DESIGN

ARCHITECTURAL DESIGN

Intent:

Dwelling design shall respond to the local climatic conditions, coastal location and adjoining dwellings and be representative of 'contemporary beach architecture'.

Solution:

A contemporary approach to design for climate and environment has been created by development of appropriate design for the coastal location incorporating:

- Architectural elements designed to capture the prevailing summer breezes;
- Incorporate eaves, overhangs and window shading for sun and rain protection;
- The inclusion of covered balconies, courtyards and / or walkways to provide streetscape variety;
- Open plan living blending interior with exterior;
- A selection of materials to reflect coastal architecture and provide variation of facades; and
- A reduction in building bulk through careful articulation of walls and roof lines, materials and construction techniques.

EXTERNAL WALL FINISHES

Intent:

External wall finishes must be of a scale, form and material that is reflective of a 'contemporary beach architecture'.

Solutions:

A balanced mix of materials has been used to provide a product reflective of contemporary beach architecture.

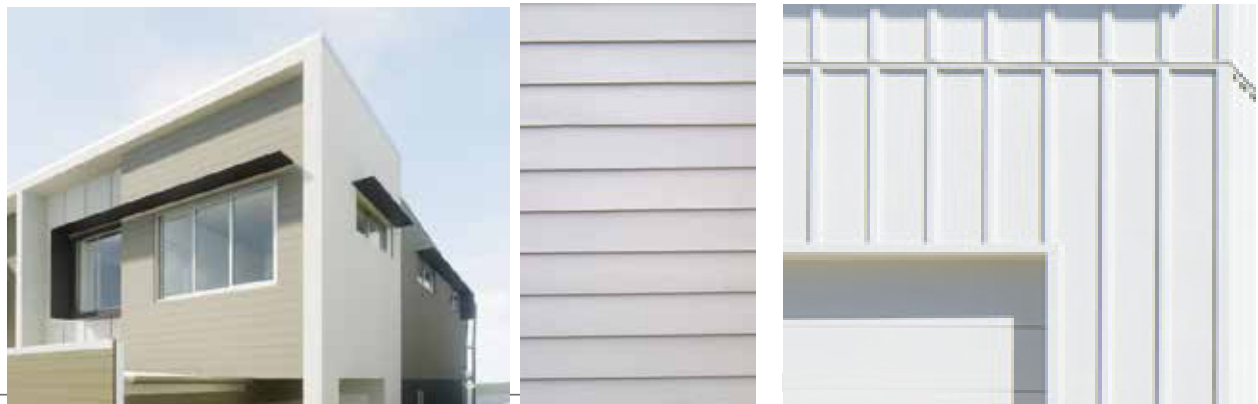
Wall cladding materials include:

- Masonry (render and paint finish);
- Weatherboards or chamferboards (paint finish);
- Fibre cement wall sheeting in a combination of flush set and with timber batten covers to joints (paint finish); and
- Cladding materials.

With a maximum of 70% of any one material used to support the scale, texture or form of the wall finishes to provide variation in scale and appearance.

Colour selections include:

- Earthy Tones; and
- Coastal Tones.



ROOFING

Intent:

Roofing is of a scale, form and construction that is reflective of 'contemporary beach architecture', including: pitch; materials; and design innovation.

Solution:

Roof form:

- Modern and contemporary roof forms with reduced roof pitches between 3-5 degrees; and
- Steps and changes in roof form and shape have been incorporated to add interest to the streetscape.

Roof materials:

- Colorbond roof sheeting; and
- Non-reflective.

Eaves:

- Buildings have a minimum eave width of 300mm where possible; and
- Where architectural style dictates suitability, a zero eaves line has been adopted.

Gutters, parapet capping, flashings and downpipes:

- All gutters, parapet capping and flashings to match roof colour; and
- Downpipes to match the feature wall colour behind to complement the dwelling design and not be conspicuous.

BUILDING HEIGHT

Intent:

Buildings and structures must not cause significant loss of amenity to adjacent land and dwellings.

SITE COVER

Intent:

Dwellings must demonstrate variation in the development envelope, and must provide adequate opportunity for the absorption of stormwater within allotments.

SOLAR AND DAYLIGHT ACCESS

Intent:

Orientate buildings to maximise northern aspect and to provide a minimum of 70% of townhouses receiving direct winter sunlight into living areas, habitable rooms, balconies or external private spaces and yards.

Solutions:

In general,

- The dwellings do not exceed 8.5m in height from the existing ground line to the highest part of the roof; and
- The dwellings do not exceed two storeys.

Solutions:

The maximum site cover of a dwelling on an allotment are as follows:

- Lot size smaller than 155m² : 95% overall site coverage.
- Lot size greater than 155m²: 80% overall site coverage.

Solutions:

- Aligning roadways parallel to the natural contours of the site enables safe, direct access to vehicles and maximises "on grade" pedestrian movement and maximises north aspect.
- Maximise yard spaces to properties with restricted northern aspect.
- Townhouses with South facing living areas have access to direct northern daylight to upper bedrooms.

STREET ADDRESS

Intent:

Dwellings must address the public realm to contribute to the streetscape character and enable passive surveillance.



Entry gates, arbors and entrances.



Pergolas at entry

Solution:

- The main entrance to the dwelling opens on to the primary access street or public open space; or
- For corner allotments, main entrance faces the same direction as garage entry; and
- Arbors or pergolas are provided at entry gate and main entrance to clearly identify entry way from main street frontage; and
- Letterbox location is integrated at entry gate or alternatively to be located within .5m of front boundary.

FRONT SETBACKS

Intent:

Dwellings addressing the public streets must be setback from Montwood Drive & Snapper Drive street frontage.

Dwellings must have the same setback as neighbouring lot:

- To ensure acceptable access to dwellings from roadways;
- To avoid overshadowing of adjoining allotment; and
- To create a high quality streetscape.

Solution:

Dwellings comply with the following setbacks on site:

- Dwellings addressing Montwood Drive to have a minimum 3m setback.
- Dwellings addressing Snapper Drive to have a minimum 4m setback.
- Blocks 1, 2, 9-11 (excluding corner lot 73), a minimum setback of 5.4m from garage face to front boundary to allow for visitor parking.
- Block 12 - 17 to have a minimum setback of 2m to primary street;
- Block 3: Townhouse Type C to have a min 1m, and Type D to have 0.4m setback.
- Block 4: Dwellings to have a minimum 0.5m setback.
- Block 5: Dwellings can have a zero lot to front boundary.
- Block 6: Dwelling Type C to have a min of 1m and Type D to have 0.4m setback.
- Block 7: Dwelling Type C to have a min of 1m and Type D to have a zero lot setback.
- Block 8: Dwellings to have a min of zero lot setback.
- Block 18: Dwellings to have a min of 0.2m setback.
- Block 19: Dwellings to have a min of 0.2m setback

SIDE SETBACKS

Intent:

Dwellings to have a setback from side, rear and secondary road boundaries to avoid overshadowing, to enhance privacy and for bin storage.

Solution:

- In general, if end lots, the setback shall be a minimum of 900mm to side boundaries; and
- An average minimum of 900mm to secondary road boundaries.

REAR SETBACKS

Intent:

Structures must be setback from rear boundaries to facilitate a corridor of vegetation and to create a visual separation for privacy.

Solution:

VEHICLE ACCOMMODATION

Intent:

Residents' vehicles must be accommodated on-site with minimal visual obtrusiveness and adequate provision for vehicle manoeuvring. The location and treatment of garages, garage doors and carports must contribute positively to the primary streetscape.



Vehicle accommodation

- Minimum setback of 0.5m to Laneway.
- Dwellings backing on to proposed Lot 150 (NDC Plan P9 - Proposed Subdivision Stage 1C, Dated 04.07.19) shall have a minimum 10m setback measured from the building line to the outer boundary of proposed Lot 150 being the common boundary with the Conservation Management Zone.
- Back to Back lots for Type C dwellings to have a minimum glazing setback of 5m; and
- for Type D dwellings, a minimum setback of 1.5m; and
- Balcony setback of 2m minimum; and
- No hardstand to be within 1m of the rear setback to allow for a corridor of landscaping for additional privacy

Solution:

Vehicle space provided:

- A minimum of two (2) on site car parking spaces shall be provided for all allotments;
 - Type A dwelling – One garage space and one stacked off street parking space to be provided
 - Type B, C & D dwellings – Double garage to be provided

Materials:

- Garage door materials shall complement and incorporate the design details of the main dwelling and overall site, including materials, colour & design; and
- Garage door frames to be similar colour palette to the featuring wall colour surrounding it.

DRIVEWAYS

Intent:

Safe, functional and attractive vehicle access is vital for access and egress to the home and presentation and amenity of the adjacent streetscape.

(Vehicle accommodation solutions continued...)

Streetscape:

- Where allotments have two access roads, garages are rear loaded onto laneways and secondary road frontages.

Solutions:

Driveway widths are:

- Double driveways: 4.8m maximum at the property boundary; and
- Single driveways: 3m maximum at the property boundary.

Crossover to comply with council regulations.

Driveway material to be:

- Concrete finish.

CORNER ALLOTMENTS

Intent:

Dwellings are to address primary streets, secondary streets, and adjoining public spaces. The primary and secondary facades are to have complementary elements.

Solution:

- Windows, balconies, verandas, and/or screening devices shall be incorporated into elevations facing street frontages and public spaces to articulate building form;
- All walls facing primary and secondary street frontages shall have windows, change in material and/or feature elements to provide interest and articulation; and
- Laundries and clothes-drying facilities, shall not be located along the primary or secondary street frontages except where it is the dwellings only private open space.



Corner allotments



ANCILLARY STRUCTURES

Intent:

Ancillary structures must be visually attractive and blend with the building and landscape design.

Solution:

- Garden sheds shall not be visible from the street and shall be no larger than 10 square metres;
- External antennae if required, shall be located at the rear of the dwelling and extend no more than 2.0m above the roof ridgeline;
- Roof, wall and window mounted air conditioning units will not be visible from the street or public areas; and
- Air conditioners to be located below the eaves line and screened from public view; and Clotheslines, hot water and gas systems, shall be located where they are not visible from the street or public areas.
- Garbage bins shall be located where possible within a screened enclosure otherwise.

FENCING - PRIMARY STREET FRONTAGE

Intent:

Front fences must not dominate the streetscape amenity. Residences must be visible from the street through fences with low height and open structure.



Semi-transparent vertical battens



Terraced Retaining wall

Fencing shall only be incorporated in the front yard for the following reason:

- To provide privacy around outdoor living spaces located in the front yard or side yard in the case of corner lots.

Front fences are to be a combination of the following finishes:

- Painted and rendered masonry, or split faced masonry
- Powder coat finish to aluminium vertical battens; and
- Gates to match vertical battens.

Fences facing the street are constructed of vertical palings that complement the overall street frontage, retaining walls, planters and the dwelling design and shall not to exceed 1.5m in height.

Fencing to front yard can run the full length of the front boundary line providing the following solutions are met:

- Vertical articulation through planter boxes or change in stepped retaining walls; and
- Colour finishes must complement the design and detailing of the dwelling.
- Overall fence design should be visually permeable with a minimum of 25% visual permeability of the total length of the front boundary.
- Front street fencing shall be either a minimum of 1m for fall prevention; or maximum 1.5m on top of retaining wall for articulation and privacy.

FENCING - SECONDARY STREET FRONTAGE

Intent:

Fences used in conjunction with landscaping shall provide necessary screening of living areas and allow passive surveillance of the streetscape.

FENCING - SIDE AND REAR BOUNDARY

Intent:

Side boundary fencing must provide privacy for private open space and service areas as well as demarcation of lot boundaries.



Internal Yard Side and Rear Fencing

Solution:

Raw masonry, metal or timber are not incorporated along the boundary line of secondary street frontages.

Fencing are constructed of vertical palings that complement the overall street frontage, retaining walls, planters and the dwelling design and shall not exceed 1.5m in height from public street level.

Soft landscaping designed to provide screening, individuality and privacy to the dwellings.

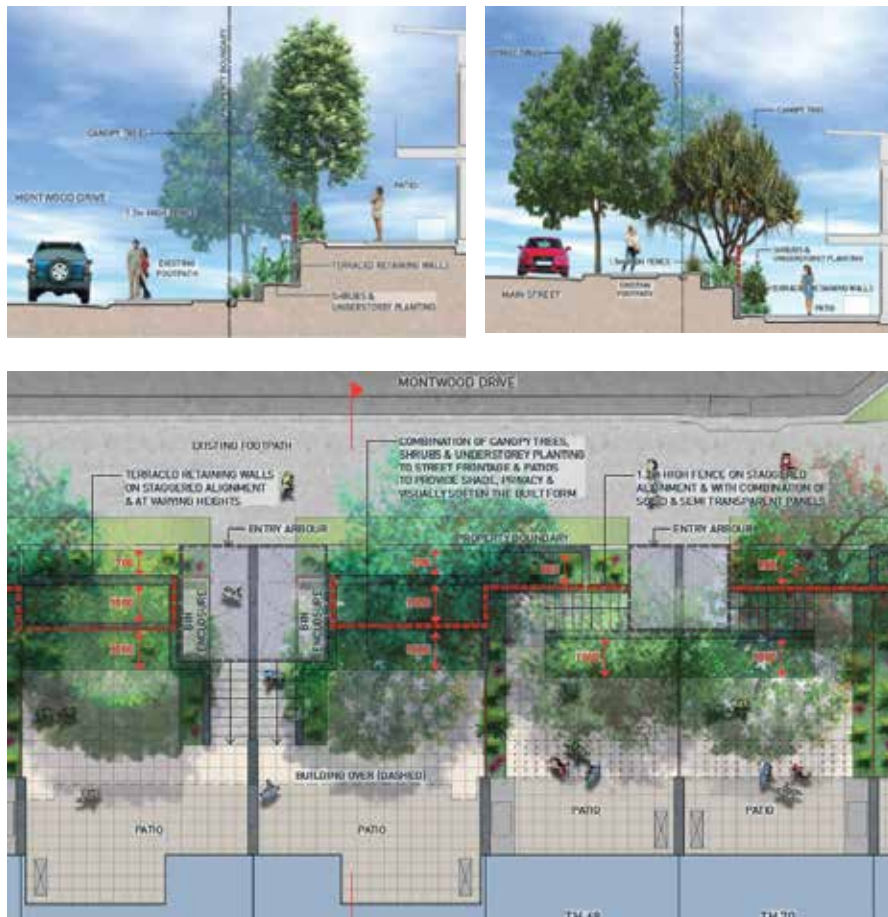
Solution:

- Where allotment has a front fence, the side and rear fence where facing the street shall have the same fencing design; and
- Provide a visual change in height, fence orientation, stepping in material or introduction of another material at least once every 12m.
- All other internal yard fencing along boundary between lots are to be 1.8m lapped timber paling fence; and
- Side fences shall not extend past the face of the closest structural wall to the corresponding side boundary unless in conjunction with an approved front or rear fence.
- Lots backing on to Conservation Management Zone to have fences with open type palings or similar and to be designed in a way that provides casual surveillance of the path from both ground and first floor levels of the dwellings.

RETAINING WALLS

Intent:

Wherever possible, retaining walls should be terraced and / or landscaped to not appear overbearing. Retaining walls shall have a level of detail that reflects the design and construction of the dwelling.



Terraced retaining walls

Solution:

Retaining wall requirements:

- Lots requiring retaining walls at primary street frontages to be terraced or stepped; or
- Lots requiring retaining walls at side boundary or secondary street frontages; and
- Where possible, retaining walls shall not exceed 0.9m in height from public street level, even though retaining wall could be visually higher within private courtyard.
- Retaining walls can align to boundary line; and
- Where fencing is required on top of retaining walls the design of the fencing and retaining wall shall be integrated; and
- Where possible provide a minimum setback of 0.7m from the front boundary to the face of the retaining wall to allow for landscaping.
- Shared retaining walls between two or more dwellings shall be centred on boundary line including fencing on top.

SUSTAINABILITY

WATER EFFICIENCY

Intent:

To reduce reliance on existing Council water supply.

NATIVE PLANTING

Intent:

To attract wildlife, reduce watering and garden maintenance and avoid adding to the spread of “environmental weeds”.

PHOTOVOLTAIC SOLAR PANELS

Intent:

To reduce load demand on electrical supply infrastructure.

Solution:

- All shower heads, taps and toilets shall be a minimum AAA rating.
- All dwellings are plumbed to the council dual reticulation water supply network.

Solution:

- Include a minimum 3 native plant species in garden plantings from the attached planting list.
- Limiting plantings to those on the attached planting list is encouraged but is not mandatory.

Solution:

- The inclusion of Photovoltaic solar panels on dwellings is encouraged.

DEFINITIONS

Ancillary Structures	Out buildings including sheds of no more than 10m ² and pools.
Building Height	The measured height of a dwelling from the existing ground line to the highest part of the roof. Each dwelling has a maximum height of 8.5m and a maximum 2 storey build.
Corner Allotment	Any allotment bounded by two or more roadway frontages where the roads intersect or join, dedicated parkland or unconstructed road reserve.
Outermost Projection	The extremity of a building including roof overhangs and fascia, but excluding gutters and downpipes.
Primary Street Frontage	The frontage of an allotment or corner allotment determining the allotment address.
Rear Boundary	Any boundary line or part thereof which coincides with another allotment and is generally paralleled with the nominated 'frontage boundary'.
Secondary Street Boundary	The frontage of a corner allotment, which abuts a second street, not the frontage determining the allotment address.
Setbacks	The minimum distance from any allotment boundary to a building. Refers to a line or lines, parallel to a boundary of a lot beyond which a building shall not encroach. Setbacks are measured to the solid building wall. Setback does not apply to eaves, gutters, overhangs, screens, lightweight pergola and roof structures and/or feature elements.
Site Cover	The portion of an allotment which is covered by a building or other structure having an impervious roof, excluding balconies, sunshades, eaves, entry gate structure, landing and stairs.

RECOMMENDED PLANT SPECIES

RECOMMENDED PLANT SPECIES – STREETScape TREES

Trees
BUCKINGHAMIA celsissima
CUPANIOPSIS anacardioides
HARPULLIA pendula
LIVISTONA australis
LOPHOSTEMON confertus
WATERHOUSEA floribunda
XANTHOSTEMON chrysanthus

RECOMMENDED PLANT SPECIES – PRIVATE YARDS

Trees	Hedges	Shrubs & Ground Covers	Shrubs & Ground Covers
ACMENA smithii	BAECKEA linifolia	AUSTROMYRTUS dulcis	METROSIDEROS 'Fiji Fire'
ATRACTOCARPUS fitzalanii	BANKSIA robur	BANKSIA 'Coastal Cushion'	MYOPORUM ellipticum
BANKSIA integrifolia	ERIOSTEMON myoporoides	BAECKEA virgata 'Compacta'	MYOPORUM parvifolium
BACKHOUSIA citriodora	GREVILLEA 'Robyn Gordon'	CAREX appressa	SCAEVOLA calendulacea
BUCKINGHAMIA celsissima	LEPTOSPERMUM polygalifolium	CARPOBROTUS glaucescens	VIOLA hederacea
CUPANIOPSIS anacardioides	MELALEUCA 'Claret Tops'	CASURINA 'Cousin It'	WESTRINGIA 'Jervis Gem'
ELAEOCARPUS reticulatus	METROSIDEROS 'Fiji Fire'	CALLISTEMON 'Better John'	
HARPULLIA pendula	METROSIDEROS 'Little Dugald'	CALLISTEMON 'Green John'	
HIBISCUS tiliaceus 'Rubra'	SYZYGium 'Bush Christmas'	CRINUM pedunculatum	
METROSIDEROS excelsa	SYZYGium 'Resilience'	DORYANTHES excelsa	
PANDANUS tectorius	WESTRINGIA 'Wynyabbie Gem'	DORYANTHES palmeri	
TRISTANIOPSIS laurina 'Luscious'		GREVILLEA 'Bronze Rambler'	
CUPANIOPSIS anacardioides		LEPTOSPERMUM 'Pacific Beauty'	
ELAEOCARPUS reticulatus		LOMANDRA hystrix	
WATERHOUSEA floribunda		LOMANDRA longifolia	
XANTHOSTEMON chrysanthus		MELALEUCA thymifolia	