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ACN 097 068 114

Your reference: --
Our reference: -- *RFA21-012-2*
Date: - 21 September 2021

The Chief Executive Officer
Logan City Council
PO Box 3226
Logan City DC. Qld 4114

Dear Sir/Madam,

Re: - Bushfire Hazard Assessment – 115 & 117 School Road, Logan Reserve – Stage 7 and 8

This advice has been prepared to accompany a Development Application over the above properties for (see Figure 1):

- Material Change of Use for Dwelling Houses that also includes a variation request (to change the zoning from Emerging Community to Low-Density Residential – Suburban Precinct, and also to apply a Plan of Development); and
- Reconfiguration of a Lot which creates 80 new residential allotments lots (see Figure 1). It is noted that an earlier development proposal has been lodged over parts for these two properties by the Applicant, Baycrown Pty Ltd.
- The earlier development layout is attached as Figure 2

Site Description

- The subject site consists of a portion 115 School Road, Logan Reserve, described as Lot 25 on RP97736. The northern portion of 115 School Road was covered by the existing development application.
- Topographically, the land is relatively flat with slopes over the land around 5 degrees slope. Based on bushfire behaviour across landscapes of this slope the land is generally considered to be flat with the slope not having a significant influence on bushfire behaviour above wind direction.
- 115 School Road is a battle-axe shaped lot with a single dwelling house and auxiliary structures and a large farm dam on the property. While there are several stands and individual trees within the properties, the aerial photography indicates the current

landowners have cleared all or much of the understorey and maintain the groundcover with irregular mowing/slashing. The lot is approximately 98 metres wide.

- A review of the Regulated vegetation management area mapping and supporting map shows a small narrow area within 115 School Road as Category B, Regional Ecosystem 12.9-10.4 - *Eucalyptus racemosa* subsp. *racemosa* woodland to open forest. Other species can include *Angophora leiocarpa, Eucalyptus seeana, E. siderophloia, Corymbia intermedia, E. tindaliae*, with *Lophostemon suaveolens, Melaleuca quinquenervia, E. tereticornis* common on lower slopes. Occurs on Cainozoic and Mesozoic sediments +/- remnant Tertiary surfaces. (BVG1M: 9g) (see Figure 3). RE12.9-10.4 is listed as Least Concern under the *Vegetation Management Act* 1999.
- With regard to bushfire, the subject site the QFES Redi-portal maps the vegetation as the Vegetation Hazard Class 9.2 – Moist to dry eucalypt woodland on coastal lowlands and ranges. VHC-9.2 is attributed with a surface fuel load of 11.4 t/ha, a near-surface fuel load of 3.4t/ha and an overlay fuel load of 17.2 t/ha.
- With regard to the neighbouring properties;
    - The lands to the west, 97 and 95 School Road are similar battle-axe properties in shape and of similar size and width.
        - 97 School Road contains some areas of woody vegetation in the southern half of the property however, much of this is regrowth from 2013 with thickening and what appears to be a change in land management from 2017. However, recent Nearmap aerial imagery from November 2020 indicates that while some shrubby regrowth has occurred the understorey the groundcover is still depauperate and as such potentially not suitable to carry a significant groundfire.
        - 95 School Road appears to have been managed by the occupier to the extent that the groundcover and understorey are regularly managed according to the recent historic aerial photography from April 2020 to date.
    - With regard to lands to the south, 21 and 22 Calume Court, both properties are mostly clear of woody vegetation and have been maintained in that state since 2009 according to the historic aerial photography.
    - With regard to the properties abutting 117 School Road, these are mostly smaller allotments and all of them are predominately clear of areas of woody vegetation. The exception is 119-125 School Road which contains an area of vegetation in the northern 2/3rds of the property. it is noted this property is approximately 80 metres wide.

Bushfire Hazard Mapping

A review of the Logan City Plan, Bushfire Hazard Overlay map and the State Planning Policy Bushfire hazard mapping, indicates they are the same and have mapped the same polygon and level of bushfire hazard identically (see Figures 5 and 6).

The proposed development footprint of stages 8 and 9 both bushfire overlay maps, show an area of medium potential bushfire hazard class. This area is connected via a narrow 70-metre wide corridor to a larger area of medium potential bushfire hazard class over vegetation within 95 School Road, Logan Reserve.

A review of the latest aerial photography (see Figure 3) (Nearmap, 8 Sept 2021) indicates the vegetation within 95 School Road has been significantly thinned and as such it would no longer be classified as a bushfire hazard area.

Furthermore, as a consequence of the development of Stage 8 and 9 within 115 School Road, the subject site of this application, the vegetation within 97 School Road is not connected to any other areas of hazardous vegetation, and as the width of the property is less than 100 metres, the area of vegetation can be considered to an area low bushfire hazard based on s2.2.1 – Patch and Corridor Filtering in *Leonard et al* (2014)[1].

Bushfire Hazard Discussion

Based on the current bushfire hazard mapping within the mapped Category B vegetation within 115 School Road and using the Fireline Intensity Model the inputs and outputs have been provided in Table 1 below.

Table 1 – Fireline Intensity Calculation using VHC-9.2

Vegetation Hazard Class (VHC)	Potential Fuel Load (t/ha)	Potential Fire Weather Severity (FFDI)	Slope under hazardous vegetation (deg)	Potential Fireline Intensity (kw/m)	Potential Bushfire Hazard Class
9.2 Moist to dry eucalypt woodland on coastal lowlands and ranges	**17.2**	**54**	**2**	**11,370**	**Medium**

Input fields	Calculated fields

However, as the vegetation within 115 School Road has been thinned and managed understorey the VHC changes from 9.2 – Moist to dry eucalypt woodland on coastal lowlands and ranges to VHC 40.4 -low grass or tree cover in rural areas. therefore the input and output values are provided in Table 2 below.

Table 2 – Fireline Intensity Calculation using BVHC-40.4

Vegetation Hazard Class (VHC)	Potential Fuel Load (t/ha)	Potential Fire Weather Severity (FFDI)	Slope under hazardous vegetation (deg)	Potential Fireline Intensity (kw/m)	Potential Bushfire Hazard Class
40.4 Low grass or tree cover in rural areas	**5**	**54**	**2**	**961**	**Not BPA**

Input fields	Calculated fields

Therefore based on the site characteristics the vegetation within Lot 115 and 95 School Road, Logan Reserve can be mapped as an area of low bushfire hazard.

[1] Leonard, J., Newnham, G., Opie, K., and Blanchi, R. (2014) A new methodology for state-wide mapping of bushfire prone areas in Queensland. CSIRO, Australia.

Conclusions

Based on our assessment of the bushfire hazards which are mapped within and around the proposed development site we have concluded:-

1. There are no bushfire hazard areas within the proposed development site. This determination is based on the current land management practices of the occupiers of the lots included within the development proposal and the immediate adjoining neighbours. The small polygon of medium bushfire hazard over 117 School Road and the neighbouring lots of Loganview Road North can be discounted as there is no vegetation under that polygon which can be described as hazardous.
2. The vegetation within 95 School Road can now be described as an area of low bushfire hazard due to the change in vegetation hazard class from VHC-9.2 to VHC 40.4 and as such as calculated in Table 2 av=bocve is determined to be an area of Low bushfire hazard.
3. The bushfire hazard mapping of 119-125 School Road, can also be reduced to an area of low bushfire hazard due to the current management practices of adjacent land occupiers, it is lack of connectivity to any other area of hazardous vegetation and its lack of width based on s2.2.1 (pg.5)in *Leonard et al* (2014).

Recommendations

Based on the above conclusions and the proposed development plan there are no specific bushfire recommendations that can be made for this development proposal. Issues such as fire hydrants and road widths are dealt with in the relevant engineering reports.

While it is our opinion that the development can be seen to be located within an area of Low bushfire hazard and as such no response to the Bushfire Hazard Overlay Code is necessary, however, a response to the Bushfire Hazard Overlay Code is provided in Appendix 2 below.

Yours faithfully,

Rob Friend
Director
Rob Friend & Associates Pty Ltd

Appendix 1 – Figures

Figure 1 – Proposed Plan of Subdivision

LEGEND

Application boundary	
Existing lot boundaries Lot 25 + 26 RP97736	
Existing application 25 + 26 RP97736 and 40 + 41 RP229101	
Core Koala Habitat Area + Category B on the regulated vegetation management map (TRACED) (subject to detail investigation)	
OM-05.00 Flood hazard trigger-Flooding and inundation areas (TRACED) (subject to further investigation)	
Temporary turnaround subject to detail design	*
Indicative future road network	

YIELD SUMMARY

Lot Frontage	Number of Lots	%
10.00-12.49m	4	5.0%
12.50-13.99m	41	51.3%
14.00-15.99m	19	23.8%
16.00-17.99m	13	16.3%
≥18.0m	1	1.3%
Duplex Lots	2	2.5%
TOTAL	80	100%

LOTS BY STAGE

Stage 7	45
Stage 8	35
Total Stage	80

NORTH

0 50 100 150

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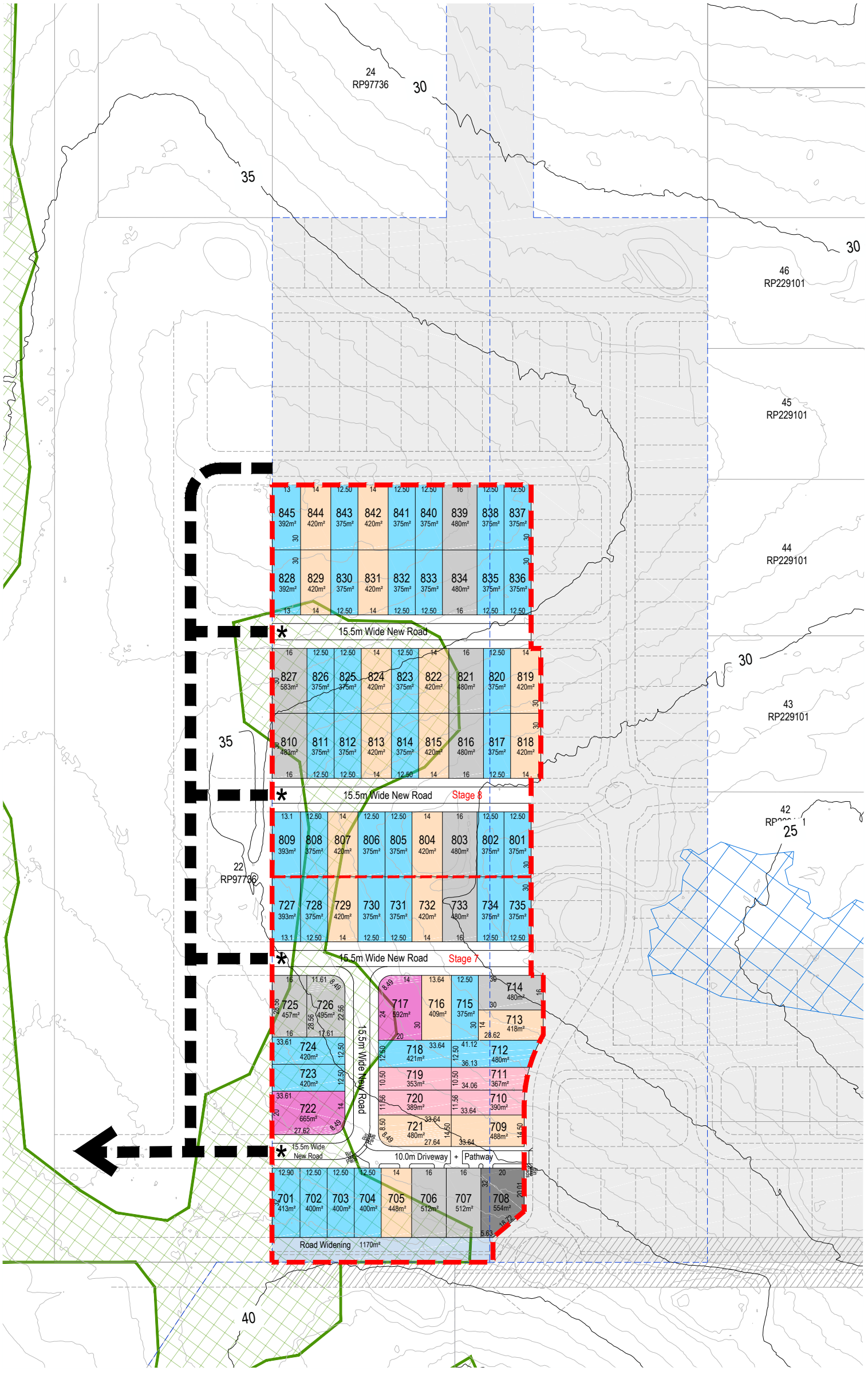

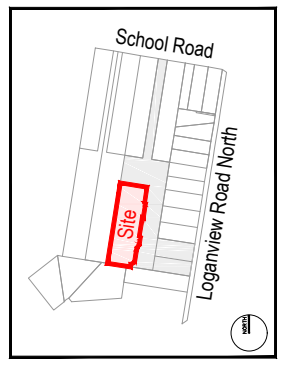

KEY DIAGRAM (nts)

CLIENT
Baycrown Pty Ltd

PROJECT
Plan of Subdivision

115 + 117 School Road,
Logan Reserve

Part 25 + 26 RP97736

AMENDMENTS:		DATE:
A	Original	28.07.2021
B		
C		
D		
E		
F		
G		
H		

DESIGNED:	KS	DATE: 28.07.2021
DRAWN:	KS	DATE: 28.07.2021
SCALE:	1:2,000 @ A3	1 of 1

IMPORTANT NOTES:

This note is an integral part of this plan. This plan may not be reproduced without this note.

This plan was prepared for a Development Application. This plan should not be used for any other purposes.

This plan remains subject to, but not limited to, authority approval, detail design and final survey.

The total number of lots shown on this plan is approximate only.

No relevance should be placed on the information on this plan for any financial dealings involving the land.

Cadastral Boundaries:
DCDB © State of Queensland (Department of Natural Resources and Mines) 2020

Koala Mapping;
State of Queensland (Department of Environment and Science) 2020

ISO 9001
ISO 14001
AS/NZS 4801
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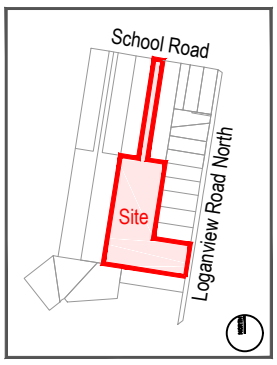
DRAWING NUMBER:	ISSUE:
20-0136-PS3	A

Figure 2 – Existing Development layout

NORTH

0 50 100 150

1:2,500@A3



KEY DIAGRAM (nts)

LEGEND

Site boundary	
Existing lot boundaries	
Core Koala Habitat Area + Category B on the regulated vegetation management map (TRACED) (subject to detail investigation)	
37.0m offset from Core Koala Habitat Area + Category B on the regulated vegetation management map (TRACED) (subject to detail investigation)	
OM-05.00 Flood hazard trigger-Flooding and inundation areas (TRACED) (subject to further investigation)	
Possible Local Park	
Possible Stormwater Treatment	
Balance lot	
Temporary turnaround subject to detail design	*
Stormwater Treatment (1,500m²)	*
Indicative future road network	

YIELD SUMMARY

Lot Frontage	Number of Lots	%
10.00-12.49m	2	2.2%
12.50-13.99m	45	48.9%
14.00-15.99m	21	22.8%
16.00-17.99m	16	17.4%
≥18.0m	4	4.3%
Duplex Lots	4	4.3%
TOTAL	92	100%

RESIDENTIAL LOTS PER STAGE

Stage 1	32
Stage 2	24
Stage 3	36
Total	92

DEVELOPMENT SUMMARY - Lots

Residential lots	92
Balance lots	3
Stormwater Treatment lot	1
Local Park lot	1
Total	97

DEVELOPMENT SUMMARY

Ave. lot area	442m²
Min. lot area	352m²

DENSITY

Site Area approx. (excluding lots 2001+2002+2003)	7.57ha
Number of lots	92
Density	12.1du/ha

CLIENT
Baycrown Pty Ltd

PROJECT
Plan of Subdivision

115 + 117 School Road and
248-258 Loganview Road North,
Logan Reserve

25 + 26 RP97736 +
40 + 41 RP229101

AMENDMENTS:		DATE:
A	Original	18.03.2021
B		
C		
D		
E		
F		
G		
H		

DESIGNED:	KS	DATE: 18.03.2021
DRAWN:	KS	DATE: 18.03.2021
SCALE:	1:2,500 @ A3	1 of 1

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Koala Mapping;
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DRAWING NUMBER:	ISSUE:
20-0136-PS1	A

Figure 3 – Nearmap aerial image


95 School Rd.
97 School Rd.
115 School Rd
99.32 m
306.8 m
306.11 m
99.69 m
Wed Sep 8 2021
Imagery © 2021 Nearmap, HERE
50 m
nearmap

Figure 4 - Regional Ecosystem Map (QFES Redi-Portal v 11)

Redi Map

This map was automatically generated using Geocortex Essentials.

153°6'3" 153°6'6" 153°6'9" 153°6'12" 153°6'15" 153°6'18"

-27°43' -27°43'4" -27°43'8" -27°43'12" -27°43'16" -27°43'20"

LOGAN CITY
12.9-10.4
non-rem
LOGAN CITY
non-rem
12.9-10.4
12.9-10.4
12.9-10.4
LOGAN CITY
LOGAN CITY
non-rem
non-rem
12.9-10.4

When printed at A3 - 1:2,257

0 0.05 0.09

Kilometres

WGS_1984_Web_Mercator_Auxiliary_Sphere

Legend

- Base Parcels Only
- Local government
- Remnant Vegetation V10 (Regional Ecosystems
- World Imagery
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery
- Citations

A3 map produced on:
September 22, 2021 3:27:47 PM

Figure 5 – SPP Bushfire Hazard Map (QFES Redi-Portal)

Redi Map

This map was automatically generated using Geocortex Essentials.

153°6'3" 153°6'6" 153°6'9" 153°6'12" 153°6'15" 153°6'18"

-27°43' -27°43'4" -27°43'8" -27°43'12" -27°43'16" -27°43'20"

LOGAN CITY

LOGAN CITY

When printed at A3 - 1:2,257

0 0.05 0.09

Kilometres

WGS_1984_Web_Mercator_Auxiliary_Sphere

GDA

A3 map produced on:

September 22, 2021 3:31:02 PM

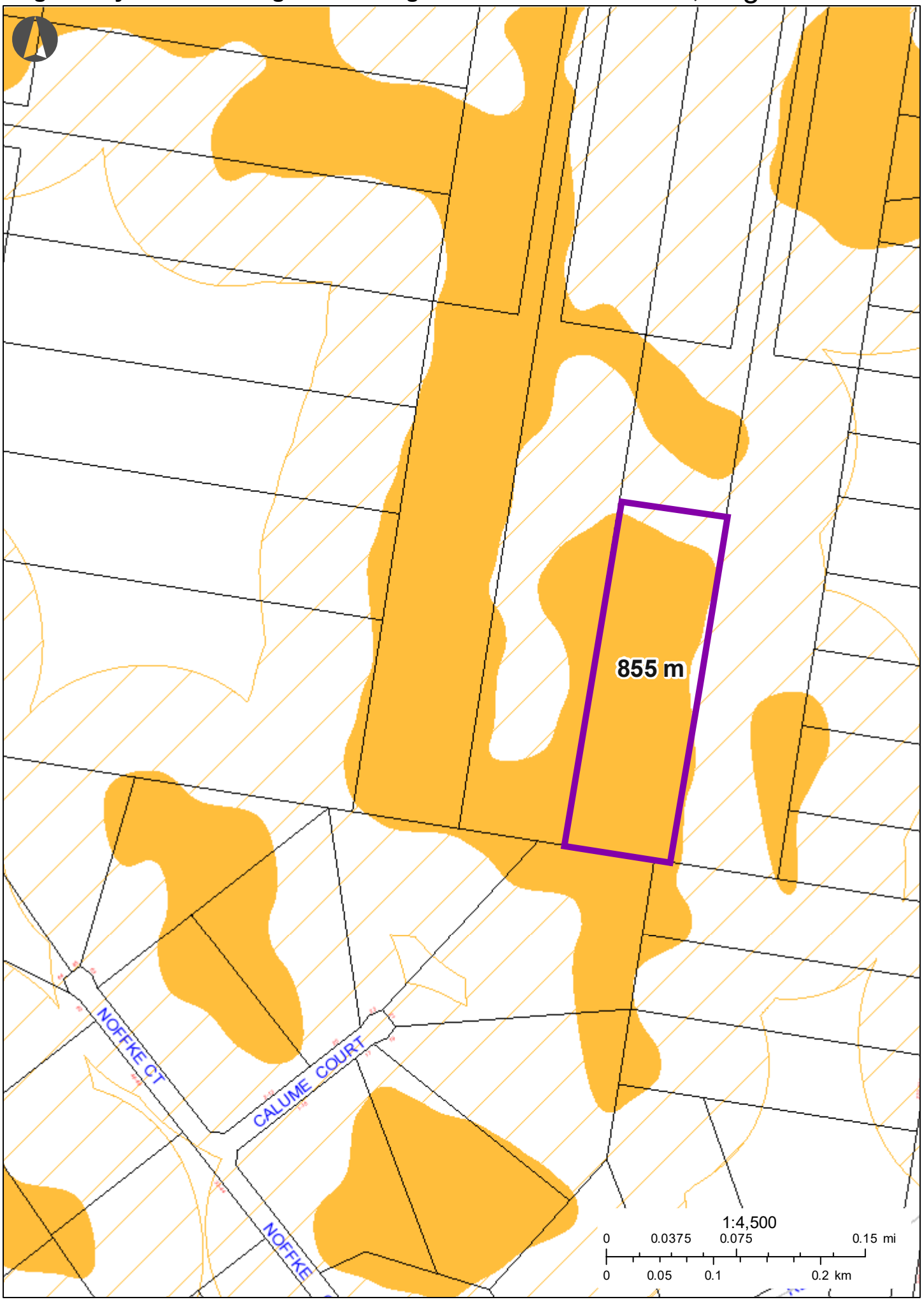
Legend

- Base Parcels Only
- Local government
- Bushfire Prone Areas - dynamic
  - Very High Potential Bushfire Intensity
  - High Potential Bushfire Intensity
  - Medium Potential Bushfire Intensity
  - Potential Impact Buffer
- World Imagery
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery
- Citations

Figure 6 – Logan Bushfire Hazard Overlay Map

Logan City Council - Logan Planning Scheme 2015

115 School Rd, Logan Reserve



Printed: September 21, 2021

Attachment 2 – Bushfire Hazard Overlay Code

8.2.3.3 Criteria for assessment

Part A–Criteria for self-assessable and assessable development

Table 8.2.3.3.1–Bushfire hazard overlay code: self-assessable and assessable development

Performance outcomes	Acceptable outcomes	Response
For self-assessable and assessable development		
Location, design and siting of development		
PO1 Development is designed to: (a) minimise risk of bushfire hazard; (b) provide safe premises; (c) create efficient emergency access for firefighting and other emergency vehicles. Note– - Planning scheme policy 6 - Management of bushfire hazard provides guidelines on how to achieve this outcome.	AO1 Development: (a) does not increase the number of persons living in, or lots in, the Bushfire hazard area identified on Bushfire hazard overlay map - OM–03.00; or (b) is on a site that a bushfire hazard assessment prepared in accordance with the methodology in planning scheme policy 6–Management of bushfire hazard determines is of low bushfire hazard.	R1 • an analysis of the site has shown that areas mapped a medium bushfire hazard within and within 100 metres of the proposed development areas can effectively be mapped as areas of low bushfire based on a lack of vegetation to support the bushfire hazard polygon or using s2.2.1 – Patch and Corridor Filtering in *Leonard et al* (2014). • Therefore, as there is no bushfire hazard area within 100 metres of the proposed development the development will not increase the numbers of persons living within a bushfire hazard area.
PO2 Development is sited and constructed to minimise the bushfire hazard and maximise the protection of life and property from bushfire.	AO2 Development is located and constructed: (a) where there is no bushfire management plan approved by an existing development approval: (i) such that the bushfire attack level is less	R2 • as the proposed development is not in a bushfire hazard area, no bushfire management plan is required.

Performance outcomes	Acceptable outcomes	Response
	than or equal to BAL–29; (ii) away from the most likely direction of a fire front; (iii) so that elements of the development least susceptible to fire are sited closest to the bushfire hazard; (iv) such that asset protection zones are sited on land with a slope less than 18 degrees; (v) such that asset protection zones are entirely within the boundaries of the private property of the development site; or (b) where an approved bushfire management plan directs development to be located. Note—BAL = Bushfire attack level is the radiant heat flux a building will experience during a bushfire and is a measure of heat energy impacting on a surface expressed as kW/m^2. BAL is calculated from the following factors; vegetation type, fuel loads, distance to vegetation, Forest Fire danger Index (FDI), flame length, fire behaviour/intensity and slope. BAL is used to determine the required construction level of a building and the size of asset protection zones (inner and outer radiation zones). Further information on calculating the BAL can be obtained from AS3959–2009. Editor's note—Asset protection zones are not located on slopes greater than 18 degrees to ensure maintenance is practical, soil stability is not	

Performance outcomes	Acceptable outcomes	Response
	compromised and the potential for crown/canopy fires is reduced. Editor's note—Planning scheme policy 6–Management of bushfire hazard contains guidance on the preparation of bushfire management plans.	
PO3 Reconfiguring a lot ensures that lots are designed to minimise bushfire hazard and provide safe sites for people, property and buildings.	AO3 Lots: (a) are suitable for people, property and buildings by: (i) having a bushfire attack level less than or equal to BAL–29; or (ii) containing a development envelope area that has a bushfire attack level less than or equal to BAL–29; (b) provide asset protection zones that: (i) are located on land with a slope less than 18 degrees; (ii) are located on the same lot.	R3 • as the development is greater than 100 metres for an area determined to be a potential bushfire hazard area, all proposed structures will not be required to be comply with AS3959 as a deemed to comply with the National Construction Code (NCC).
Vehicular access and fire maintenance trails		
PO4 Access for fire management and evacuation is provided by access that: (a) separates premises from adjoining vegetation; (b) is safely accessible by fire fighting vehicles; (c) has regular vehicular access points for bushfire	AO4 Access for fire management and evacuation is provided by vehicular access in the form of a perimeter road: (a) with a minimum reserve width of 20 metres; (b) located between the premises and adjoining	R4 • while the development is outside of any bushfire hazard area of potential impact buffer, the site will be serviced by public roadways which will connect to existing public roadways.

Performance outcomes	Acceptable outcomes	Response
management, response and evacuation; (d) has regular vehicle passing and turning areas for bushfire management, response and evacuation; (e) allows access at all times for fire fighting vehicles; (f) allows for maintenance, burning off and bushfire response; (g) has vehicular links to an alternative through road; (h) is readily maintained. Editor's note—Planning scheme policy 6–Management of bushfire hazard provides details on alternative solutions for providing fire management access and evacuation	vegetation; (c) with a maximum gradient of 12.5 percent; (d) constructed to otherwise comply with section 3.4–Movement infrastructure standards of planning scheme policy 5–Infrastructure; (e) that has a layout that does not include a cul-de-sac.	
Water supply		
PO5 Development has access to adequate water supply for fire fighting purposes.	AO5 Development: (a) is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for fire fighting purposes at all times with a minimum pressure and flow of 10 litres per second at 200kPa; or (b) has an on-site water storage in accordance with Table 8.2.3.3.2–Water storage for fire fighting, dedicated or retained for fire fighting purposes that is made of fire resistant materials and is: (i) a separate tank; or (ii) a reserve section in the bottom part of the	R5 • while the development is outside of a potential bushfire hazard area or a potential impact buffer, the development will be connected to reticulated water.

Performance outcomes	Acceptable outcomes	Response
	main water supply tank. Editor's note—The requirement in AO5 is: − in addition to the requirement for potable water supply/storage in AO2 in Table 9.4.3.3.2–Infrastructure code: self-assessable and assessable development.; − reflected in AO5 in Table 9.4.3.3.2–Infrastructure code: self-assessable and assessable development.	
For assessable development		
Community Infrastructure		
PO6 Community infrastructure is not located in a bushfire hazard area or is able to function effectively during and immediately after a bushfire event.	AO6 Community infrastructure is: (a) not located in a Bushfire hazard area identified on Bushfire hazard overlay map—OM—03.00; or (b) located to ensure that: (i) the core services provided by the community infrastructure is able to function effectively during bushfire events; (ii) access to the community infrastructure is not compromised by bushfire events; (iii) the safe storage of valuable records, public records and items of cultural or historic significance is able to be maintained during a bushfire event.	R6 • no community infrastructure is proposed for this development

Performance outcomes	Acceptable outcomes	Response
Hazardous materials		
PO7 Public safety and the environment are not adversely affected by the adverse impacts of bushfire on hazardous materials including fuels, explosives and flammable chemicals manufactured or stored in bulk on premises.	AO7 Hazardous materials: (a) storage is in compliance with AS1940—The storage and handling of flammable and combustible liquids; (b) (b) manufacturing does not occur in a Bushfire hazard area on Bushfire hazard overlay map–OM–03.00.	R7 • There is no proposal to store or manufacture hazardous chemicals.