



Elizabeth Drive Pty Ltd
Elizabeth Drive Biodiversity Assessment
Bushfire Assessment

August 2021

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Appendices

Appendix A – Intended future land uses

1. Introduction

1.1 Purpose of this report

This report has been prepared for Elizabeth Drive Pty Ltd to demonstrate that a proposed 11 lot subdivision at 1111-1141 Elizabeth Drive, Cecil Park, NSW, 2178 meets the specific aims and objectives of Planning for Bushfire Protection 2019 (NSW RFS 2019) (PBP) for the intended future land uses. The amended application seeks approval for the preparatory enabling works required to facilitate the development of tourism and associated facilities. The concept subdivision layout will accommodate a range of intended future uses which leverage off its strategic location/setting. These uses are detailed in Appendix A, and include:

- Eco-tourist facility
- Food and drink premises
- Highway service centre
- Information and education facility
- Recreation area
- Recreation facility (indoor)
- Recreation facility (major)
- Recreation facility (outdoor)
- Special Fire Protection purpose (SFPP)
- Tourist and Visitor accommodation

This report identifies bushfire constraints associated with potential future use, identifying the Bushfire Attack level (BAL) ratings across the site and identifying those lots that could provide for a radiant heat level of less than 10kW/m² (calculated at 1200K) experienced on any part of a building. Lots that can achieve this performance criteria may be suitable for SFPP, and highway service centre uses subject to detailed assessment of each proposed use at Development Application stage. This assessment also provides Asset Protection Zones (APZ) to achieve a maximum of BAL-29

1.2 Scope

The subject land is designated as:

- 1111-1141 Elizabeth Drive, Cecil Park, NSW, 2178 (Lot 2, Plan No. DP 2954)

The following subdivision is proposed:

- Eleven lot industrial subdivision, with potential for Special Fire Protection Purpose (SFPP) uses – all possible future land uses are listed in Appendix A

The proposal was assessed in accordance with the *Environmental Planning and Assessment Act 1979* and PBP 2019. Additionally, this report addresses the request for further information from the NSW Rural Fire Service (RFS) (DA-2019-00324-Response to Submissions-1) dated 26 November 2020.

Table 7 provides summary of where the responses have been provided.

A call between Simon Derevnin of the NSW RFS and Mick George of GHD on 6 August 2021 clarified that due to the preliminary nature of the proposed land uses as identified in Section 1.1, a constraints approach indicating which lots could achieve a maximum a radiant heat level of less than 10kW/m² would be provided to identify those lots that may be able to be utilised for SFPP and highway service centre uses subject to detailed assessment of each proposed use at Development Application stage. Other lots would be industrial and commercial use, and lots are not proposed for residential use.

This report is prepared to provide sufficient information to demonstrate that the development complies with the aim and objectives of PBP, including:

- i. Afford buildings and their occupants protection from exposure to a bushfire
- ii. Provision of a defensible space around buildings
- iii. Provision of appropriate separation between hazards and buildings which, in combination with other measures, will prevent the likely fire spread to buildings
- iv. Ensure appropriate operational access and egress for emergency services personnel and occupants is available.
- v. Provide for ongoing management and maintenance of bushfire protection measures
- vi. Ensure that utility services are adequate to meet the needs of firefighters.

1.2.1 Amendments

This report has been updated in response to the proposed acquisition of part of the site which will reduce the site area by 26,617 m². The acquisition of this portion of the site proposed by TfNSW has required amendments to be made to the proposed development and development footprint which require a re-assessment of the impacts and design. The proposed use for the western part of the site which is for the new M12 Motorway alignment.

1.3 Limitations

This report has been prepared by GHD for Elizabeth Drive Pty Ltd and may only be used and relied on by Elizabeth Drive Pty Ltd for the purpose agreed between GHD and the Elizabeth Drive Pty Ltd as set out in section 1.1 of this report. GHD otherwise disclaims responsibility to any person other than Elizabeth Drive Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report. The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section 1.2. of this report and throughout). GHD disclaims liability arising from any of the assumptions being incorrect. GHD has prepared this report on the basis of information provided by Elizabeth Drive Pty Ltd and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report. Site conditions (including the presence of hazardous substances

and/or site contamination) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

2. Description of the property

2.1 Site location

This report is prepared for 1111-1141 Elizabeth Drive, Cecil Park, 2178 (Lot 2, Plan No. DP2954) (the subject land), (Figure 1) for a proposed eleven lot commercial/industrial subdivision, with the western portion of the site reserved for future use for the M12 alignment. The total lot is 7.37 ha in size, and the proposed subdivision covers 4.72 ha.

The subject land currently includes a residence in the southeast near Elizabeth Drive and vegetation, dam and creek line running along the north western boundary. The subject land is surrounded by partly cleared, private rural residential blocks, with Cecil Road and Elizabeth Drive bounding the western and southern boundaries and the M7 Motorway and Wallgrove Road within 300 m of the eastern border.

The proposal would include the removal of the residential dwelling, around 3.56 ha of exotic vegetation and up to 1.15 ha of native vegetation.

The subject land is located within Fairfield City Council Local Government Area that is within the 'Greater Sydney Region' and has a corresponding Fire Danger Index (FDI) rating of 100 (NSW RFS 2019).

The proposed lot sizing and layout is shown in Figure 2.

2.2 Significant environmental values

A Biodiversity Development Assessment Report has been commissioned to quantify impacts of the development to significant environmental values. Impacts have been minimised as far as practicable. Refer to the Biodiversity Development Assessment Report for additional information (GHD 2020).

2.3 Threatened flora and fauna

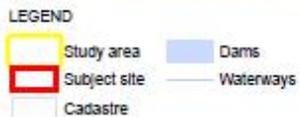
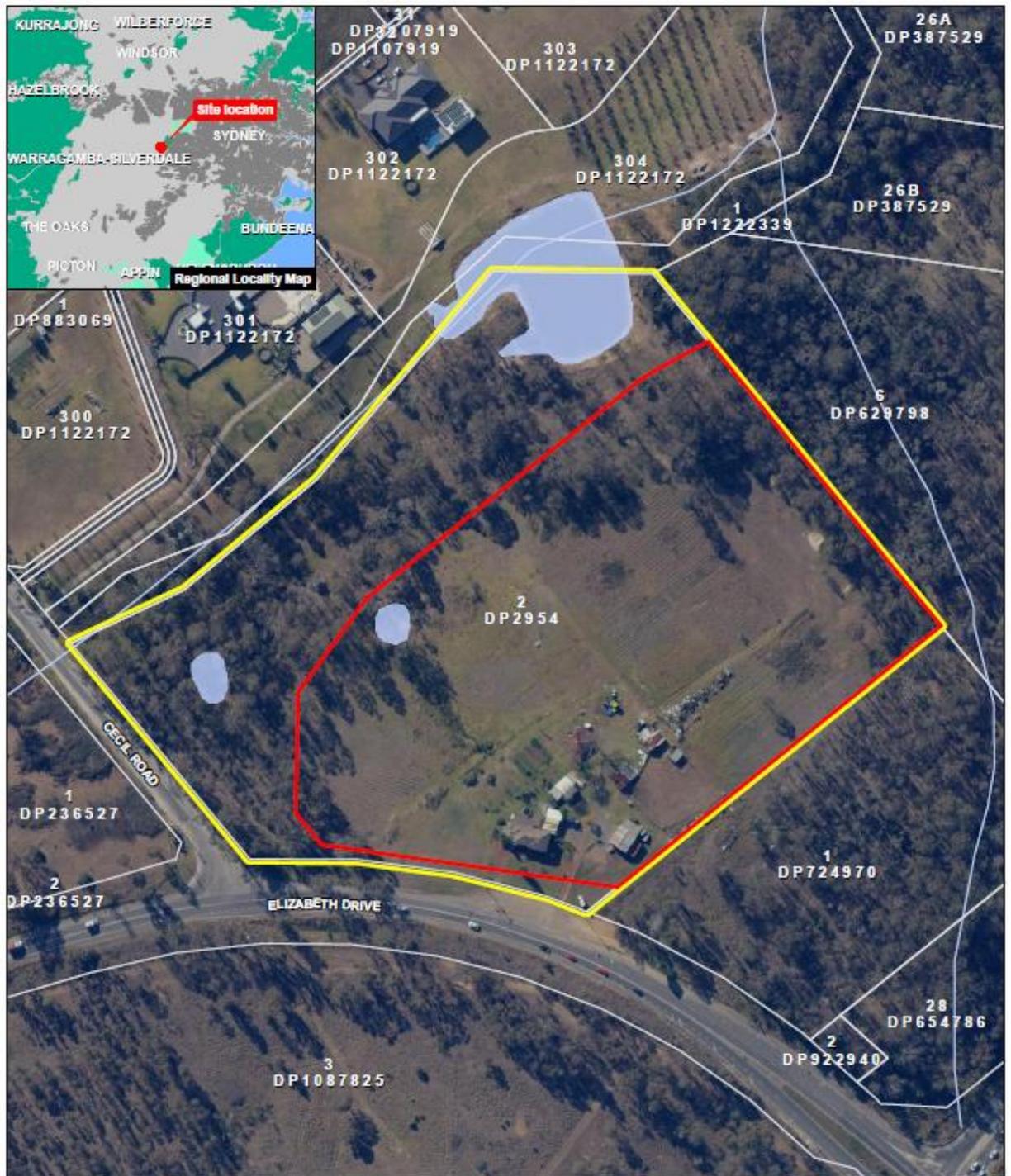
The vegetation community within and adjoining the subject land includes:

- PCT 849 - Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion
- Southern Myotis (*Myotis macropus*) habitat

Refer to the Biodiversity Development Assessment Report for additional information (GHD 2020).

2.4 Aboriginal cultural heritage

There is no Aboriginal object (within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the applicant situated on the property.



<p>Paper Size A4</p> <p>0 20 40 80</p> <p>Metres</p> <p>Map Projection: Transverse Mercator Horizontal Datum: GDA 1994 Grid: GDA 1994 MGA Zone 55</p>			<p>1111 Elizabeth Drive Pty Ltd Elizabeth Drive Biodiversity Development Assessment Report</p> <p style="text-align: center;">Site map</p>	<p>Job Number 21-27092 Revision 0 Date 15 Jun 2020</p>
<p>H:\AU\Sydney\Projects\2107092\GIS\Map\Deliverables\Revised\Layout\21_27092_2001_R1_SiteLocation_0.mxd level 15, 103 Castlereagh Street Sydney NSW 2000 T 61 2 9239 7100 F 61 2 9239 7199 E sydm1@ghd.com.au W www.ghd.com.au</p> <p>© 2020. Whilst every care has been taken to prepare this map, GHD (and NSW Department of Lands, SIX Maps 2020, Geoscience Australia) make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damages) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unavailable in any way and for any reason.</p> <p>Data source: Aerial Imagery - SIX Maps 2020 (© Department of Customer Service 2020); General topo - NSW LRI DTDB 2017, 2015 & 2012; Cadastre - NSW LRI DTDB 2017; Inset map - Geoscience Australia. Created by: J. Price</p>				

Figure 1 Site locality




PROJECT
 1111-1141 ELIZABETH DRIVE,
 CECIL PARK

CLIENT
 ELIZABETH DRIVE PTY LTD


 Copyright by AE Design Partnership Pty Ltd. This document is conceptual and for discussion purposes only. Drawings are subject to further detail study, Council approval, engineering input, and survey.

11,500 @ A3

TITLE
 STRUCTURE PLAN

DA06

DRAWN	CHECKED	DATE	ISSUE
SB	RD	30/06/2021	A1.2

Figure 2 Proposed lot design (AE Design Partnership 2021)

3. Bushfire hazard Assessment

3.1 Vegetation classification

The identification of bush fire prone areas is required under Part 10.3 of the Environmental Planning and Assessment Act (1979). The subject land is designated as bushfire prone (as per Fairfield City Council mapping - see Figure 3) due to the presence of bushfire prone land within and adjoining the site. A site-based hazard assessment was used to confirm bushfire prone vegetation adjoining the subject land.

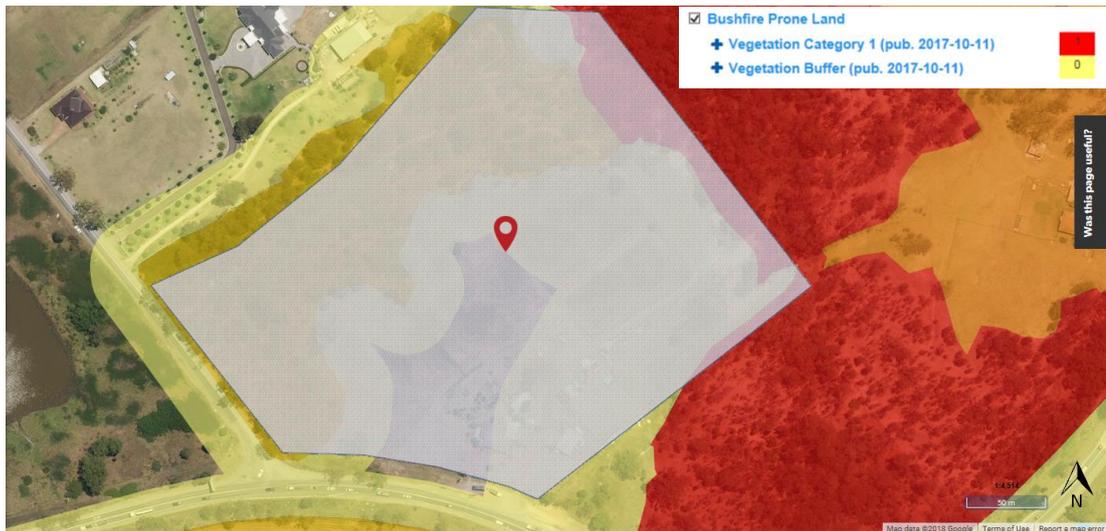


Figure 3 Bushfire prone lands mapping

Site assessment on 18 January 2018 confirmed the presence of bushfire prone vegetation within and adjoining the subject land (to the east). The predominant vegetation class formation from PBP (NSW RFS 2019) is given in Table 1 below with photos presented in Figure 4.

Table 1 Vegetation type, formation and classification

Vegetation type	Vegetation formation (Keith 2004)	AS3959:2018 classification
Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion (PCT 849)	Grassy Woodlands	Woodland

The vegetation identified as *Grey Box- Forest Red Gum grassy woodlands* match the description of Woodland vegetation formation (NSW RFS 2019) for the following reasons:

- Dominated by sparse layer of eucalypts, typically boxes and red gums, 15-35 m
- Diverse ground cover with long lived perennial tussock grasses
- Shrubs sparsely distributed



Figure 4 Vegetation photographs

These grassy woodland vegetation formations are located on the eastern boundary of the site, with a narrow strip on the northern boundary of the site (Figure 5). While these vegetation communities can support high intensity bushfires, most likely burning as a faster moving surface fire in open woodland communities without a shrubby understorey, potential bushfire impacts to the site are constrained by:

- Managed vegetation to the north (mown rural residential properties and horticultural enterprises) reducing the potential for a fire to develop and spread from the north.
- A strip of land to the north which is identified for future M12 alignment.
- A large quarry, grazed land and water retention dam located to the west reducing potential fire runs.
- Elizabeth Drive to the south, providing separation from a currently grazed and planted area, which is identified for future subdivision; and
- The small patch of woodland vegetation to the east adjoins the M7 motorway.

3.2 Slope description

Site assessment confirmed slope class within the vegetation hazard is predominately >5-10 degrees downslope where the hazardous vegetation occurs (see Figure 5). Contours across the site and neighbouring lots are shown in Figure 5.

3.3 Summary of assessment

APZs provide protection from exposure, defensible space and hazard separation. APZs are not specifically required for commercial or industrial development as is proposed in this subdivision, but they have been applied to meet the objectives of PBP (NSW RFS 2019). APZs are established between a building and vegetation hazard, and their calculation is based on vegetation and slope in accordance with Appendix 1 of the PBP (NSW RFS 2019). Deemed-to-satisfy APZs, determined in accordance Tables A1.12.1, A1.12.2 of PBP 2019, are shown in Table 2 and on Figure 5.

Table 2: Bushfire hazard assessment, APZ requirements and BALs

Direction	Slope	Vegetation Formation	Required SFPP (10kW/m ²) APZ	Required BAL-29 APZ	Bushfire Attack Level (BAL)	Lots	Comments
North	>5° to 10° downslope	Woodland	60 m	20 m	BAL FZ: <15 m BAL-40: 15-<20 m BAL-29: 20 to <28 m BAL-19: 28 to <39 m BAL-12.5: 39 to <100 m BAL-LOW: >100 m	1-4	Required APZ largely provided by the proposed road to the north, with a small setback along the northern boundary required for SFPP developments on these lots.
East	>5° to 10° downslope	Woodland	60 m	20 m	BAL FZ: <15 m BAL-40: 15-<20 m BAL-29: 20 to <28 m BAL-19: 28 to <39 m BAL-12.5: 39 to <100 m BAL-LOW: >100 m	10 - 12	Lot 12 largely occupied by drainage basin that will be managed to inner APZ specifications. Lots 10 – 12 are not suitable for any SFPP development due to being unable to meet the required setbacks. Commercial and industrial land uses can be contained within lots 10 – 11.
South	>5° to 10° downslope	Woodland	60 m	20 m	BAL FZ: <15 m BAL-40: 15-<20 m BAL-29: 20 to <28 m BAL-19: 28 to <39 m BAL-12.5: 39 to <100 m BAL-LOW: >100 m	6 - 10	Lots 6 – 10 are not suitable for any SFPP development due to being unable to meet the required setbacks. Commercial and industrial land uses can be contained within lots 6 – 10.
West	All upslope and flat land	Woodland	42 m	12 m	BAL FZ: <9 m BAL-40: 9-<12 m BAL-29: 12 to <18 m BAL-19: 18 to <26 m BAL-12.5: 26 to <100 m	5	Required APZ largely provided by Elizabeth Drive extension to the west, with a small setback along the western boundary required for SFPP developments on this lot.

					BAL-LOW: >100 m		
All other directions	Managed Land						

Lots 1, 2, 3, 4 and 5 would be suitable for SFPP development once vegetation clearance works for the future M12 development has been completed, however, in the interim, these lots (except Lot 2) will require a temporary APZ to achieve BAL 10 and therefore SFPP development would be highly constrained. Lot 2 has no APZ requirements under commercial and industrial or SFPP developments.

Lots 1, 3, 4 and 5 have a landscaping setback of 12 m which would provide an interim asset protection zone under the AS 3959:2018 definition of managed vegetation (including landscaped areas and parks) as low threat vegetation. This landscaped area would provide sufficient protection for these lots to the strip of vegetation along the north-western boundary of the block until such time that it is completely cleared and developed for the future M12 alignment. Should any of Lots 1, 3, 4, and 4 be developed after clearing of vegetation for the future M12 is completed, the APZ will no longer be required. This is shown on Figure 2.

Occupants and site managers should complete a Bush Fire Survival Plan as formulated by the NSW Rural Fire Service and the NSW Fire and Rescue. An emergency evacuation plan is not recommended as a condition of consent.

Summary

- ✓ The PBP objectives for building exposure protection, defensible space and hazard separation are met through the provision of APZs applied in accordance with the dimensions identified in Table 2 for the subject land, extending from the building wall outwards and accommodated entirely within each lot (or adjoining roadways, pathways and managed vegetation areas).

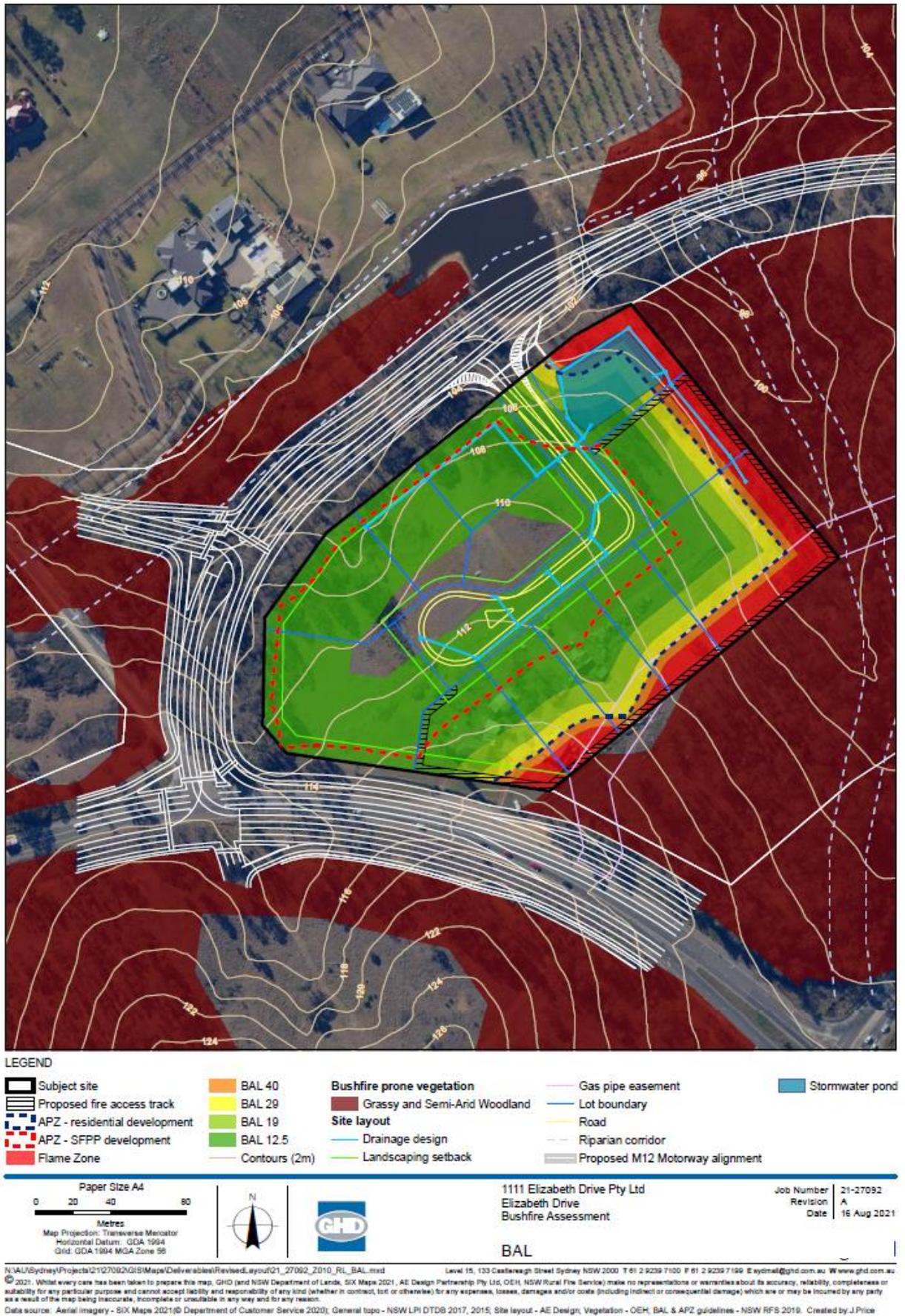


Figure 5 Bushfire Hazard Assessment and Bushfire Attack Level Mapping

4. Assessment of the proposed development

As detailed in Section 1.2, a call between the NSW RFS and GHD on 6 August 2021 clarified that due to the preliminary nature of the proposed land uses as identified in Section 1.1, a constraints approach indicating which lots could achieve a maximum a radiant heat level of less than 10kW/m² would be provided to identify those lots that may be able to be utilised for SFPP and highway service centre uses subject to detailed assessment of each proposed use at Development Application stage. Other lots would be industrial and commercial use, and lots are not proposed for residential use. Therefore, this report addresses the requirements for each proposed land use in accordance with the relevant sections of PBP 2019.

4.1 Commercial and Industrial uses

The intended future land uses (detailed in Appendix A) that would be considered as commercial and industrial uses include:

- Food and drink premises
- Recreation area
- Recreation facility (indoor)
- Recreation facility (major)
- Recreation facility (outdoor)

The infill provisions of PBP relating to commercial and industrial development will apply to future buildings for lots for commercial and industrial uses. PBP identifies the following specific provisions for Class 5-8 (as defined by the National Construction Code (NCC) that require addressing for this type of development.

As stated within Section 8.3.1 of PBP, NCC Class 5 to 8 buildings (which include offices, factories, warehouses and other commercial or industrial facilities) do not have specific bushfire performance requirements under the NCC and as such building construction standards under AS 3959 'Construction of buildings in bushfire-prone areas' (Standards Australia 2018) do not apply as a set of deemed to satisfy provisions. The general fire safety constructions provisions within the NCC are taken as acceptable solutions but the aim and objectives of PBP apply in relation to other matters such as access, water and services, emergency planning, and landscaping/vegetation management.

The objectives of PBP for this type of development are summarised in Table 3.

Table 3 Aim and objectives of PBP

Objective	Objective Description from PBP
i	Afford buildings and their occupants protection from exposure to a bush fire
ii	Provide for a defensible space to be located around buildings
iii	Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings

iv	Ensure that appropriate operational access and egress for emergency service personnel and occupants is available
v	Provide for ongoing management and maintenance of bush fire protection measures
vi	Ensure that utility services are adequate to meet the needs of firefighters

4.2 Special Fire protection Purpose Developments (including Highway service centre)

The intended future land uses (detailed in Appendix A) that would be considered as SFPP or needing to meet the 10Kw/m² radiant heat level exposure include:

- Eco-tourist facility
- Highway service centre
- Information and education facility
- Tourist and Visitor accommodation

SFPP represents uses that are typically more vulnerable to bushfire risk as they are occupied by at-risk people (such as a childcare facilities, aged care facilities, or tourist accommodation). As such, SFPP requires greater bushfire protection measures to be in place in accordance with PBP. The objectives and acceptable solutions for development specified by PBP depends on the particular use that is proposed, therefore more detailed assessment at the time of development of each lot would be required.

Individual lots developed for SFPP will require development approval which in turn will require referral of the DA to the NSW RFS for the issue of a Bush Fire Safety Authority. At DA stage for development of individual lots, bushfire risk considerations applicable for SFPP development will require assessment if SFPP development is being proposed. A restriction of the use of land under Section 88b of the *Conveyancing Act 1919* to prohibit Special Fire Protection Purpose (SFPP) developments and Class 9 buildings on Lots 6-11 because of APZ constraints is recommended.

The following constraints would apply to any SFPP development for the proposed lots in addition to the requirements already detailed throughout this report which are recommended for commercial or industrial uses.

Table 4 Additional requirements for SFPP development

	Objective	Additional requirements for SFPP	Suitability of lots for SFPP development
i	Afford buildings and their occupants protection from exposure to a bush fire	Asset Protection Zone requirements for SFPP are required in accordance with Table 6.8a and Table A1.12.1 of PBP (NSW RFS 2019). APZs are required to provide protection to BAL10 level, requiring widths as shown in Table 2.	(Refer Figure 2 for lot layout) Lot 2 will be unconstrained by SFPP APZ requirements due to being an internal lot (not adjoining the property boundary).
ii	Provide for a defensible space to be located around buildings		Lots 1, 3, 4 and 5 would be highly constrained by SFPP APZ requirements if they were

	Objective	Additional requirements for SFPP	Suitability of lots for SFPP development
iii	Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings	Landscaping and fencing minimise radiant heat impacts and likelihood of ignition.	<p>proposed to be developed for SFPP before vegetation clearing associated with future M12 development is undertaken. The constraints would be temporary until vegetation clearance has occurred. However, these same lots would be unconstrained by SFPP APZ requirements once vegetation clearance associated with M12 construction has been completed.</p> <p>Lots 6, 7, 8, 9, 10 and 11 are likely to be highly constrained by the extensive spatial requirements for BAL10 level APZs if proposed for SFPP. A restriction of the use of land under Section 88b of the <i>Conveyancing Act 1919</i> to prohibit Special Fire Protection Purpose (SFPP) developments and Class 9 buildings on Lots 6-11 because of APZ constraints is recommended.</p>
iv	Ensure that appropriate operational access and egress for emergency service personnel and occupants is available	<p>Access requirements are in accordance with Table 6.8b of PBP (NSW RFS 2019).</p> <p>Non-perimeter access roads allow safe access and egress for emergency services as well as evacuation.</p>	The proposed access road into the subdivision is not a through road (it is a cul-de-sac design)-acceptable solutions for SFPP access roads call for through roads, and thus a performance-based solution may be required if SFPP development is proposed.
v	Provide for ongoing management and maintenance of bush fire protection measures	Nil additional	
vi	Ensure that utility services are adequate to meet the needs of firefighters	<p>Requirements for utilities are in accordance with Table 6.8c of PBP (NSW RFS 2019).</p> <p>An adequate water supply for firefighting is installed and maintained, additional</p>	Some additional specificity in the requirements of water reticulation would need to be accommodated.

	Objective	Additional requirements for SFPP	Suitability of lots for SFPP development
		<p>requirements exist for SPFF water reticulation.</p> <p>Electricity and gas requirements are generally as described for commercial/industrial development.</p>	
	Emergency evacuation	<p>Emergency management planning must be performed in accordance with Table 6.8d of PBP (NSW RFS 2019).</p> <p>A Bush Fire Emergency Management and Evacuation Plan is prepared (incorporating community consultation).</p>	This is an additional requirement.

4.3 Operational access and egress for emergency services personnel and residents is available

In line with PBP (NSW RFS 2019), any new subdivision should design public roads and property access roads to ensure safe access, egress and defensible space for emergency services.

The subject land is currently accessed from Elizabeth Drive and Cecil Road. These existing public roads are two-way, two wheel drive, all weather roads and are of sufficient width to allow fire fighting vehicles to work. The entrance to the M7 motorway is within 500m of the development.

There will be public roads within the development (see Figure 2). In future, access to the lots will be via the M12 to be developed on the northern and western borders of the block. Access will be provided to the eastern and southern boundaries of the site through a minimum 4 m wide unimpeded access through lot 12, run along the eastern and southern boundaries either as trafficable APZ, fire trail or hardstand for carparking of future tenants of commercial lots. This access will reconnect with the public access road between lots 5 and 6. It is noted that this access arrangement is provided for lots that will be commercial or industrial land use only, and not for any lots that are proposed for SFPP development.

Public roads are to be constructed to meet the width specifications set out in the PBP (Table A3.2, NSW RFS 2019), and be a two-wheel drive, all weather road. Additionally, the following requirements are to be met:

- Cross fall shall not exceed 3 degrees, maximum grades for sealed roads do not exceed 15 degrees
- Curves are a minimum inner radius of 6 metres and minimum distance between inner and outer curves is 6 metres
- Minimum vertical clearance of 4 metres above the road
- The capacity of road surfaces is sufficient to carry fully loaded firefighting vehicles
- Hydrants are located outside of parking reserves/bays to ensure accessibility to reticulated water for fire suppression

The public road network provides suitable access for, and egress for, fire management and emergency response purposes.

Summary

- ✓ Fire fighters are provided with two-way all-weather access to each lot
- ✓ Public road width allows safe access for fire fighters and evacuating site occupants
- ✓ Road capacity is sufficient to carry a fully loaded fire vehicle
- ✓ Existing roads and roads within the new development will be clearly signposted
- ✓ Parking does not obstruct the paved width
- ✓ Unobstructed 4 m wide (minimum) access for commercial and industrial lots 6 - 11.

4.4 Provide for ongoing management and maintenance of bushfire protection measures

APZs within the proposed development will largely comprise of landscaped areas (to the north) and hardstand areas surrounding buildings. As such there is little opportunity for fuel hazards to

accumulate. Therefore, management of APZs will meet and largely exceed the requirements of Standards for Asset Protection Zones (Appendix 4 NSW RFS 2019).

The proposed drainage basin within lot 12 will be managed to APZ specifications. This will be ensured through a Community Title Scheme or a Plan of Management depending on the end management arrangements of the site.

4.5 Utility services are adequate to meet the needs of fire fighting

4.5.1 Water Supply

The subject land has reticulated water supply, currently located on Elizabeth Drive, which can be extended throughout the subdivision, with a ring main system for all internal roads.

Fire hydrant spacing sizing and pressures must comply with AS 2419.1 – 2005.

Hydrants must be accessible (i.e., outside parking bays or within the access road) and suitably spaced.

4.5.2 Electricity

Electricity lines are, where practicable, underground. Where overhead electrical transmission lines are proposed:

- lines are installed with short pole spacing (30 metres) unless crossing gullies, gorges or riparian areas
- no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002)

4.5.3 Gas

In order to comply with the Rural Fires Regulation, all gas supplies are to be installed and maintained in accordance with AS/NZS 1596–2014. All fixed gas cylinders are kept clear of flammable materials, close to the building with release valves pointing away from the building.

Summary

- ✓ For each lot, a dedicated accessible water supply is to be located onsite in compliance with the conditions set out in Section 4.5.1. Gas and electricity can be installed to limit the potential for ignition to bushland.

5. Assessment of compliance

The bushfire protection measures that apply to the subject land comply with the aim and objectives of PBP (NSW RFS 2019). As a result, compliance with the objectives of PBP has been achieved, as summarised in the table below. The development including the bushfire protection measures outlined in Section 2 of this report is therefore appropriate for the issuance of bush fire safety certificate.

Table 5 Compliance with Planning for Bushfire Protection 2019

Objective	Assessment of compliance with acceptable solutions	Meets Objective?
(i) Afford buildings and their occupants protection from exposure to a bush fire (ii) Provide for a defensible space to be located around buildings (iii) Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings	<p>The proposed development has achieved the objectives by providing an APZ in accordance with PBP, i.e.</p> <ul style="list-style-type: none"> • APZs are provided in accordance with Tables A1.12.1 or A1.12.2 of Planning for Bushfire Protection 2019 based on the FFDI • APZs are managed in accordance with the requirements of Appendix 4 in Planning for Bushfire Protection 2019. • APZs are wholly within the boundaries of the development site • APZs are located on lands with a slope less than 18 degrees. 	Yes
(iv) Ensure that appropriate operational access and egress for emergency service personnel and occupants is available	<p>The proposed development has achieved the objective by providing appropriate access solutions, i.e.</p> <ul style="list-style-type: none"> • Existing and proposed public roads are two-wheel drive • Traffic calming devices are not proposed • Public roads will have a crossfall not exceeding 3 degrees and grades not exceeding 15 degrees. • A minimum vertical distance of >4 m will be maintained. • Curves will be minimal and have the required dimensions. • Existing public roads have a capacity of greater than 15 tonnes and there are no bridges with load restrictions. • Unobstructed 4 m wide (minimum) access for commercial and industrial lots 6 - 11. • Parking will be within driveways and will not obstruct minimum paved width 	Yes
(v) Provide for ongoing management and maintenance of bush fire protection measures	<p>The proposed development has achieved the objective through the location of APZs within existing roadways and pathways, as well as landscaped and hardstand areas of commercial/industrial development.</p> <p>The proposed drainage basin within lot 12 will be managed to APZ specifications. This will be ensured through a Community Title Scheme or</p>	Yes

Objective	Assessment of compliance with acceptable solutions	Meets Objective?
	a Plan of Management depending on the end management arrangements of the site.	
(vi) Ensure that utility services are adequate to meet the needs of firefighters	<p>The proposed development has achieved the objective by complying with the acceptable solutions, i.e.</p> <ul style="list-style-type: none"> • Reticulated supplies will be provided within the required specifications and capacity (refer to section 4.5.1) • Hydrants will not be located within parking areas and will comply with AS 2419.1 (2005). • Electricity will be supplied via overhead powerlines with 30 m pole spacing and in accordance with Energy Australia specifications (NS179, 2002) and maintained according to National distribution network standards. • Gas supplies, where installed, will be in accordance with AS/NZS 1596 (2014). 	Yes

6. Recommendations

The following bushfire protection measures are made for the proposed 11 lot industrial subdivision of the subject land at 1111-1141 Elizabeth Drive, Cecil Park, 2178 (Lot 2, Plan No. DP2954). Application of these recommendations allows the development to conform with the aim and objectives of Planning for Bush Fire Protection (NSW RFS 2019) (PBP), as detailed in Section 4 of this report.

Table 6 Recommendations

Performance criteria	Description
(i) Protection from exposure to bushfire	<p>SFPP development would be viable for Lots 1 - 5 once vegetation clearance associated with future development of the M12 has been completed. APZs conforming to acceptable solutions can be accommodated within lots adjoining bushfire hazard in accordance with the dimensions identified in Table A1.12.1 in Appendix 1 of PBP</p> <p>For development other than SFPP, from the commencement of construction and in perpetuity, APZs conforming to acceptable solutions can be accommodated within lots adjoining bushfire hazard in accordance with the dimensions identified in Table A1.12.2 in Appendix 1 of PBP.</p> <p>Note: AS 3959:2018 'Construction of Buildings in Bushfire Prone Areas' does not apply to industrial developments.</p>
(ii) Defendable space	
(iii) Appropriate hazard separation	
(iv) Operational access and egress	<p>The proposed road network within the subdivision is:</p> <ul style="list-style-type: none"> • Is two-wheel drive. • Do not include traffic calming devices. • Public roads with a crossfall not exceeding 3 degrees and grades not exceeding 15 degrees. • Have a minimum vertical distance of >4 m maintained from vegetation. • Public roads have a capacity of greater than 15 tonnes and there are no bridges with load restrictions. • Unobstructed 4 m wide (minimum) access for commercial and industrial lots 6 – 11 will be provided through fire trail or hardstand • Parking will be within driveways and/or parking will not obstruct minimum paved width. <p>It is advised that occupants and site managers should complete a Bush Fire Survival Plan as formulated by the NSW Rural Fire Service and the NSW Fire and Rescue. An emergency evacuation plan is not recommended as a condition of consent.</p>
(v) Ongoing management of APZs	<p>From the commencement of construction and in perpetuity, APZs are maintained in accordance with the NSW RFS requirements (Appendix 4, Planning for Bushfire Protection).</p> <p>The proposed drainage basin within lot 12 is to be managed to APZ specifications. This will be ensured through a Community Title Scheme or a Plan of Management depending on the end management arrangements of the site</p>
(vi) Utility services	<p>For each lot, a dedicated accessible water supply must be located on each lot which must meet the requirements outlined in Section 4.5.1.</p>

Electricity, unless supplied underground, will be supplied via overhead powerlines with 30 m pole spacing and in accordance with Energy Australia specifications (NS179,2002) and maintained according to National distribution network standards.
Gas supplies, where installed, will be in accordance with AS/NZS 1596 (2014).

7. Summary

This report consists of a bushfire risk assessment to support a proposed rezoning to facilitate a proposed eleven lot subdivision (with a vegetation reserve), at 1111-1141 Elizabeth Drive, Cecil Park, 2178 (Lot 2, Plan No. DP2954).

The report concludes that the development is on bushfire prone land and the legislative requirements for development in bushfire prone areas are applicable.

This report has considered all of the elements of bushfire attack and provided the proposed development is constructed in accordance with the recommendations included in Section 6 of this report, the development is considered to satisfy the aim and objectives of Planning for Bushfire Protection 2019 for development.

Proposed use for SFPP development can only apply to lots 1-5, and lots 6 – 12 are not suitable for any SFPP development, including the Highway service centre. Any proposed SFPP development will require additional assessment and modification to the design including provision for APZs, modification to roads and water supply design and development of a Bush Fire Emergency Management and Evacuation Plan. Future assessment of individual lots may demonstrate that these are appropriate for SPFF development.

This report provides a response to the NSW RFS DA-2019-00324-Response to Submissions-1 dated 26 November 2020. The summary of where these issues are addressed is provided in Table 7.

Table 7 Response to NSW RFS RFI (DA-2019-00324-Response to Submissions-1 dated 26 November 2020)

<i>Issue Raised</i>	<i>Addressed in Report</i>
<p>The Applicant is to address the provision for perimeter roads under section 3.4.1 of <i>Planning for Bush Fire Protection 2019</i> (PBP). This may incorporate a performance-based solution to demonstrate how firefighting operations can be effectively deployed to the interface and defend multiple properties with ease and efficiency.</p>	<p>Section 4.3, Page 16</p>
<p>NSW RFS assessed an effective downslope of 5-10 degrees to the northeast of the development site. As such, an asset protection zone (APZ) of 20 metres along the length of the north-eastern boundary of proposed Lots 10 and 11 should be provided to facilitate future commercial-type developments. Otherwise, future buildings will require BAL Flame Zone construction based on the current 12-metre setback, which may not be practicable.</p>	<p>Section 3.3, Page 8 and Table 2, Page 9</p>
<p>The subdivision plan is to incorporate a restriction of the use of land under Section 88b of the <i>Conveyancing Act 1919</i> to prohibit Special Fire Protection Purpose (SFPP) developments and Class 9 buildings on Lots 6-11 because of APZ constraints as acknowledged in the bush fire report.</p>	<p>Section 4.2, Page 13-14</p>
<p>The proposed detention basin on Lot 12 has not been identified as potential hazard despite connectivity to Grassy Woodland vegetation the northeast. As such, a suitable mechanism is to be proposed ensuring the ongoing management of the basin by a body corporate under a Community Title Scheme or a Plan of Management by a government entity. Otherwise, the potential bush fire threat must be addressed, including how it impacts on the single point access for future SFPP developments.</p>	<p>Section 4.4, Page 16-17</p>
<p>The proposed development intends to facilitate a future highway service centre that may include service stations. The Applicant is to address the appropriateness of future service stations on the development site, which is identified as a type of hazardous industry that should be avoided on bush fire prone land under section 8.3.9 of PBP.</p>	<p>Section 4.2, Page 13-15</p>

8. References

GHD (2020) Elizabeth Drive Biodiversity Development Assessment Report, report for 1111 Elizabeth Drive Pty Ltd

Keith, D.A. (2004) Ocean Shores to Desert Dunes, the native vegetation of New South Wales and the ACT. NSW Department of Environment and Conservation, Sydney.

NSW RFS (NSW Rural Fire Service) 2005. Standards for Asset Protection Zones.

NSW RFS (NSW Rural Fire Service) 2019. Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities and Developers. Prepared by NSW Rural Fire Service in cooperation with the Department of Planning.

Standards Australia 2018. AS3959 – 2018 Construction of Buildings in Bushfire-prone areas. Standards Australia and the Australian Building Codes Board, Sydney.

Standards Australia 2014. AS/NZS 1596 The Storage and Handling of LP Gas.

Standards Australia 2005. AS2419.1 – 2005 Fire Hydrant installations – System design, installation and commissioning

Appendix A – Intended future land uses



INTENDED FUTURE LAND USES

1111-1141 ELIZABETH DRIVE, CECIL PARK

DEFINITIONS

Eco-tourist facility means a building or place that:

- a) provides temporary or short-term accommodation to visitors on a commercial basis, and
- b) is located in or adjacent to an area with special ecological or cultural features, and
- c) is sensitively designed and located so as to minimise bulk, scale and overall physical footprint and any ecological or visual impact.

It may include facilities that are used to provide information or education to visitors and to exhibit or display items.

Food and drink premises means premises that are used for the preparation and retail sale of food or drink (or both) for immediate consumption on or off the premises, and includes any of the following:

- (a) a restaurant or cafe,
- (b) take away food and drink premises,
- (c) a pub,
- (d) a small bar.

Highway service centre means a building or place used to provide refreshments and vehicle services to highway users. It may include any one or more of the following:

- a) A restaurant or café,
- b) Take away food and drink premise,
- c) Service stations and facilities for emergency vehicle towing and repairs,
- d) Parking for vehicles,
- e) Rest areas and public amenities.

Information and education facility means a building or place used for providing information or education to visitors, and the exhibition or display of items, and includes an art gallery, museum, library, visitor information centre and the like.

Recreation area means a place used for outdoor recreation that is normally open to the public, and includes:

- (a) a children's playground, or
- (b) an area used for community sporting activities, or
- (c) a public park, reserve or garden or the like,

and any ancillary buildings, but does not include a recreation facility (indoor), recreation facility (major) or recreation facility (outdoor).

Recreation facility (indoor) means a building or place used predominantly for indoor recreation, whether or not operated for the purposes of gain, including a squash court, indoor swimming pool, gymnasium, table tennis centre, health studio, bowling alley, ice rink or any other building or place of a like character used for indoor recreation, but does not include an entertainment facility, a recreation facility (major) or a registered club.

Recreation facility (major) means a building or place used for large-scale sporting or recreation activities that are attended by large numbers of people whether regularly or periodically, and includes theme parks, sports stadiums, showgrounds, racecourses and motor racing tracks.

Recreation facility (outdoor) means a building or place (other than a recreation area) used predominantly for outdoor recreation, whether or not operated for the purposes of gain, including a golf course, golf driving range, mini-golf centre, tennis court, paint-ball centre, lawn bowling green, outdoor swimming pool, equestrian centre, skate board ramp, go-kart track, rifle range, water-ski centre or any other building or place of a like character used for outdoor recreation (including any ancillary buildings), but does not include an entertainment facility or a recreation facility (major).

Special Fire Protection Purpose
(Under Rural Fires Act 1997)

means the purpose of the following:

- (a) a school,
- (b) a child care centre,
- (c) a hospital (including a hospital for the mentally ill or mentally disordered),
- (d) a hotel, motel or other tourist accommodation,*
- (e) a building wholly or principally used as a home or other establishment for mentally incapacitated persons,
- (f) seniors housing within the meaning of [State Environmental Planning Policy \(Housing for Seniors or People with a Disability\) 2004](#),
- (g) a group home within the meaning of [State Environmental Planning Policy No 9—Group Homes](#),
- (h) a retirement village,
- (i) any other purpose prescribed by the regulations.

*Under RFS's Planning for Bush Fire Protection Guidelines, the following uses are considered a SFPP:

- Caravan parks
- Camping
- Primitive camping
- Bed and breakfast and farm stay accommodation
- Ecotourism,
- Manufactured home estates
- Home based child care and short term holiday rental accommodation

Tourist and visitor accommodation means a building or place that provides temporary or short-term accommodation on a commercial basis, and includes any of the following:

- a) backpacker's accommodation,
- b) bed and breakfast accommodation,
- c) farm stay accommodation, hotel or motel accommodation, serviced apartments...

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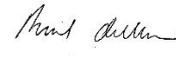
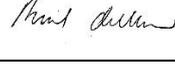
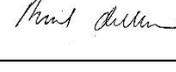
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Revision	Author	Reviewer		Approved for Issue		
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0	C. Dominiak	D. Adshead		D. Adshead		5 March 2018
1	D. Adshead	C. Dominiak		D. Adshead		6 March 2018
2	I. Lyons H. Urwin	P.de Mar		P. de Mar		18 Sept 2020
3	M George	P.de Mar		P. de Mar		17 August 2021

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