Land and environment consultants

Bushfire management plan

Proposed development | Flagstone Context Area 3 – South | Flagstone | Queensland
Prepared for Peet Flagstone City Pty Ltd | 2 October 2024

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Bushfire management plan

Final

Report 24020 | Peet Flagstone City Pty Ltd | 2 October 2024

Approved by	Robert Janssen
Position	Managing principal
Signature	
Date	2 October 2024

Document control

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Draft	29 September 2024	R. Janssen	LEC
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Disclaimer

Notwithstanding the precautions adopted in this report, it should always be remembered that bushfires burn under a range of conditions. An element of risk, no matter how small always remains, and although AS 3959-2018 is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any building will withstand bushfire attack on every occasion.

It should be noted that upon lodgement of a development proposal, State Government, council and/or the fire service may recommend additional construction requirements.

Although every care has been taken in the preparation of this report, Land and Environment Consultants Pty Ltd accept no responsibility resulting from the use of the information in this report.

1 Introduction

Land and Environment Consultants Pty Ltd (**LEC**) was engaged to prepare a bushfire management plan (**BMP**) for the proposed residential subdivision (**proposed development**) within the Flagstone Context Area 3 – South, properly described as lot 1/RP35155, lot 989/RP854074 and lots 908 and 911/SP335853(**the site**).

A priority development area development application (**development application**) will be made for the proposed development under the *Greater Flagstone Urban Development Area – Development Scheme.* Economic Development Queensland (**EDQ**) will be the assessment authority.

The site is identified as a bushfire hazard area by the *Bushfire prone area map* (**Bushfire prone area map**) in the State Planning Policy interactive mapping system (**SPP IMS**). Therefore, the development application for the proposed development will be subject to compliance with the bushfire hazard outcomes of the *Greater Flagstone Priority Development Area – Development Scheme* which calls up the superseded *State Planning Policy 1/03 Guideline – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (DLGP, DES 2003) (**SPP 1/03 guideline**) for information and assessment criteria for bushfire.

The SPP 1/03 guideline was repealed in 2013 and the current SPP 2017 is now into effect. Therefore, it is considered relevant that this BMP considers outcomes sought by the current SPP 2017 by way of the example bushfire overlay code (**Bushfire overlay code**) in the *Natural Hazards, Risk and Resilience – Bushfire, State Planning Policy State Interest guidance material* (DSDMIP 2019) (**SPP guidance material – bushfire**).

This BMP has been prepared in general accordance with *Bushfire Resilient Communities Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire* (QFES 2019a) (**BRC guide**) which was prepared by the former Queensland Fire and Emergency Services, now the Queensland Fire Department (**QFD**), to provide technical guidance for the implementation of the SPP guidance material – bushfire. It documents the bushfire hazard assessment and demonstrates how the proposed development will comply with the Bushfire overlay code. It includes:

- an introduction (this section) and description of methods and information resources used for the preparation of this BMP;
- description of the site and proposed development;
- bushfire hazard assessment;
- identification of bushfire hazards associated with the site and proposed development;
- a plan for mitigating bushfire hazards; and
- assessment of the proposed development against the Bushfire overlay code.

1.1 Method

To meet requirements of the SPP guidance material – bushfire and BRC guide, the following tasks were undertaken:

- review of the Bushfire prone area map in the SPP IMS (DSDILPG 2024), fire history data in the Queensland Globe (DR 2024) and the Queensland regional ecosystem (**RE**) map, vegetation hazard class (**VHC**) map and severe fire weather map in the QFD online mapping system (QFD 2024) (**Catalyst**);
- inspection of land adjacent to the proposed development for vegetation characteristics, current land management practices, slope and evidence of previous fires;

- bushfire hazard assessment in general accordance with the method in the BRC guide;
- radiant heat exposure assessment using the Fire Protection Association of Australia *BAL calculator V4.9* (**BAL calculator**) which models the 'method 2' bushfire attack level (**BAL**) assessment procedure in the *Australian Standard* (**AS 3959-2018**) *Construction of buildings in bushfire prone areas*; and
- assessment of the proposed development against the Bushfire overlay code.

Aerial imagery of the site and measuring tools were accessed online from Google Earth and Queensland Globe to assist with validating observations and measurements made during the site inspection.

1.2 Suitably qualified person

This BMP was prepared by Robert Janssen who is a suitably qualified and experienced bushfire management consultant.

Robert is the managing principal at LEC and has over 25 years of experience in bushfire planning and operations. He has prepared bushfire management plans for residential, commercial and industrial property developments, utilities, government facilities and conservation estates.

Robert's formal qualifications as an environmental scientist and consulting experience are coupled with 10 years of experience as a nationally accredited fire-fighter with the national parks and wildlife service in New South Wales and Queensland.

2 Description of the site and proposed development

This chapter provides a description of the site and proposed development.

2.1 Site description

The location of the site is shown in Figure 3.1. The site is within the southern part of Flagstone Context Plan Area 3 (**Flagstone CA-3**), ie the area south of Flagstone Creek. The approved Flagstone CA-3 context plan is provided in Appendix 1.

Land within and adjoining the northern and southern boundaries of the site is identified as a conservation area by the approved Flagstone CA-3 context plan.

The approved Flagstone CA-3 context plan identifies an arterial road will adjoin the eastern boundary of the site, ie New Beith Road. Beyond the arterial road is land within Flagstone CA-1 which has been cleared of bushland vegetation and is currently under construction. There is also land which is subject to a development application for a reconfiguration of a lot (management subdivision) and context plan for endorsement (EDQ application reference **DEV2023/1413**), which is pending a decision. If DEV2023/1413 is approved and development proceeds in accordance with the proposed context plan another area of bushland vegetation adjoining the eastern boundary of the site will be cleared. Notwithstanding, bushland vegetation in this area has been assessed in this BMP based on the appearance at the time of the site inspection. The proposed context plan for DEV2023/1413 is provided in Appendix 2.

Land adjoining the western boundary of the site is identified as linear open space, district recreation park and low density residential by the approved Flagstone CA-3 context plan.

2.2 Proposed development

The proposed development involves a residential subdivision. The overall plan of subdivision is provided in Appendix 3 and shows the proposed layout of roads, residential allotments, super allotments and open space areas.

The proposed super allotments will involve a local centre, district centre, ambulance, childcare, community centre, state primary school, medium density allotment and a balance allotment. The childcare and state primary school are defined as vulnerable uses in Table 7 of the SPP guidance material – bushfire. The school land use and ambulance land use are also defined as community infrastructure for essential services.

The proposed open space allotments include a conservation buffer, corridor park/conservation (**conservation park**), stormwater management, regional sports, district sports, neighbourhood recreation park, local recreation park and local linear recreation park. The proposed landscaping intent within these allotments is identified in the *Flagstone Context Area 3 Landscape Masterplan* which is provided in Appendix 4.

Bushland vegetation will be retained and rehabilitated within the proposed conservation buffer and conservation parks. Landscaping will seek to restore the species and structure of the local RE. These areas will have continuous bushfire fuel that will carry a bushfire and will be a bushfire hazard class.

Stormwater management allotments will be constructed landforms. Where they occur adjacent to residential allotments they will be landscaped with a continuous cover of groundcover species, ie grass, reeds, sedges and lilies which will result in continuous grassfire fuel that has potential to carry a surface fire. Where they occur adjacent to conservation buffers and conservation parks their landscaping will include a variety of species from the local RE which will result in continuous bushfire fuel that has potential to carry a bushfire.

The regional sports park, district sports park, neighbourhood recreation parks, local recreation parks and local linear parks will be maintained landscapes that provide a low level of discontinuous bushfire fuel. They will not carry a bushfire and will be a low bushfire hazard class.

Access and egress for the proposed development will be via a new network of roads, two connections to a future north-south arterial road running along the eastern boundary of the site and a neighbourhood connector road to the northern part of Flagstone CA-3.

The proposed development will be connected to mains water and a hydrant system will be installed in new road reserves.

2.3 Bushfire prone area map

The Bushfire prone area map for the site is provided in Appendix 5. Verification of the bushfire hazard areas shown in the Bushfire prone area map is provided via the bushfire hazard assessment in Chapter 3.

Please note, in this BMP, the terms 'bushfire prone area' and 'bushfire hazard area' have the same meaning. Both terms mean an area of vegetation that is determined to have a potential bushfire intensity ≥ 4,000 kilowatts/metre (**kW/m**) and the land within 100 m of this vegetation.

3 Bushfire hazard assessment

This chapter provides details about the desktop review, site inspection and bushfire hazard assessment.

3.1 Severe fire weather

The severe fire weather map in Catalyst indicates the 5 % annual exceedance probability forest fire danger index (**FFDI**) for the site is 56. This FFDI value has been used for the potential bushfire intensity calculations in Section 3.4 and the radiant heat exposure assessment in Section 5.12.

3.2 Fire history

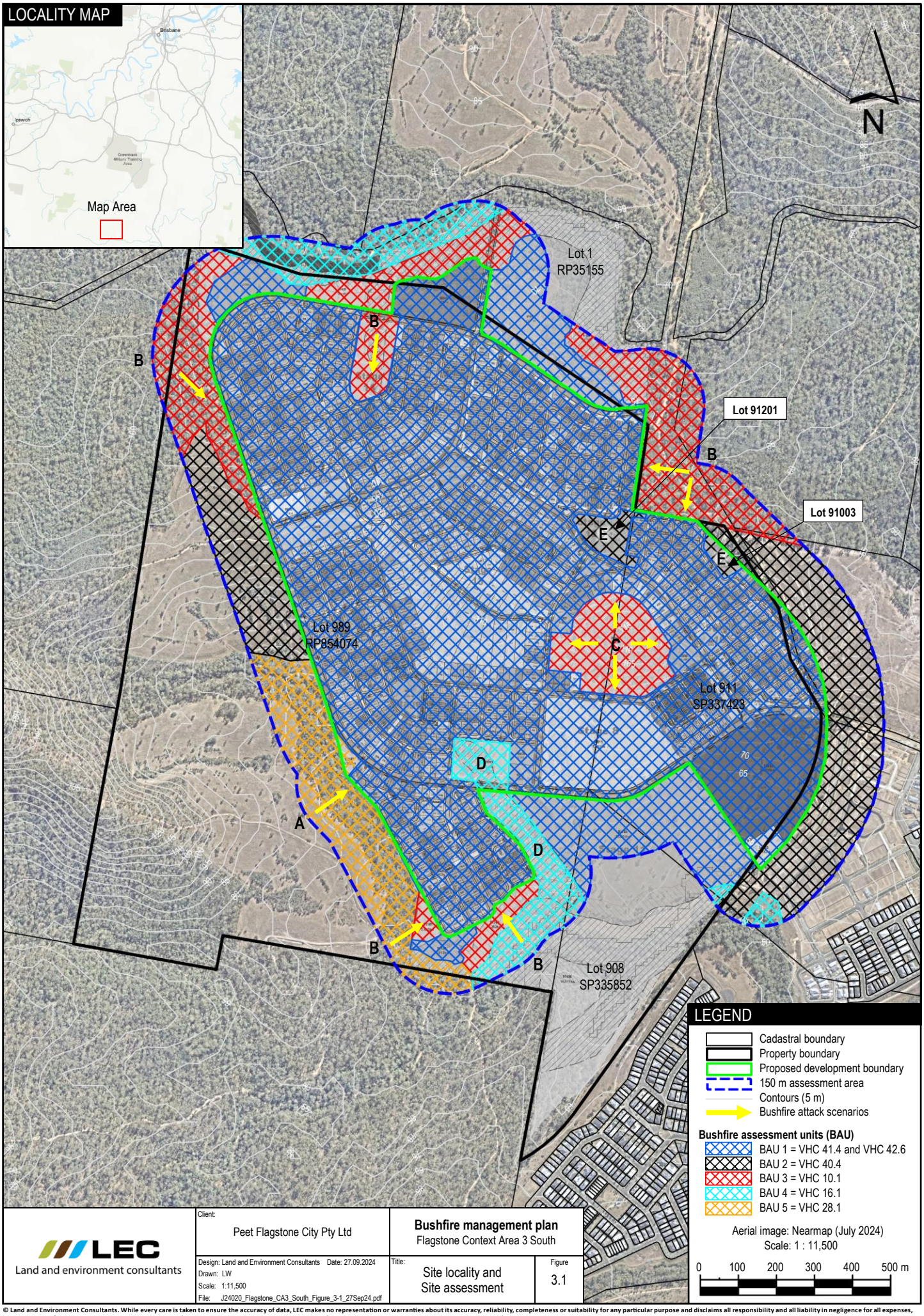
Fire history data indicates land adjoining the site regularly burns. The data does not indicate the origin of the fires, ie whether they were the result of unplanned ignitions or prescribed burns (which are carefully planned and controlled).

3.3 Site inspection

LEC inspected the site on the 19 March 2024. Observations were recorded about current land use and management, vegetation characteristics, the slope of land and evidence of previous fires.

Bushfire assessment units (**BAUs**) have been used to describe characteristics of vegetation within and adjoining the site and are shown in Figure 3.1. They consider the post development landform of the site, ie development of residential allotments, super allotments, roads and open space areas.

Table 3.1 provides a summary of the desktop review, observations from the site inspection and notes about the bushfire hazard assessment of BAUs. Features of BAUs are shown in Photographs 3.1-3.4



LEC
Land and environment consultants

Client: Peet Flagstone City Pty Ltd

Bushfire management plan
Flagstone Context Area 3 South

Design: Land and Environment Consultants Date: 27.09.2024
Drawn: LW
Scale: 1:11,500
File: J24020_Flagstone_CA3_South_Figure_3-1_27Sep24.pdf

Title: Site locality and Site assessment

Figure 3.1

Table 3.1 Site observations

BAU	Catalyst VHC	VHC	Notes
BAU 1	VHC 10.1 *Spotted gum dominated open forests* (**VHC 10.1**), VHC 16.1 *Eucalyptus dominated forest on drainage lines and alluvial plains* (**VHC 16.1**), VHC 28.1 *Open forests in coastal locations with species such as she-oak or swamp box* (**VHC 28.1**), VHC 40.4 *Continuous low grass or tree cover* (**VHC 40.4**) and VHC 41.4 *Discontinuous low grass or tree cover* (**VHC 41.4**)	VHC 41.4 and VHC 42.6 *Nil to very low vegetation cover* (**VHC 42.6**)	BAU 1 corresponds with the proposed residential allotments, super allotments, roads and maintained open space areas. The maintained open space areas include the proposed regional sports park, district sports park, neighbourhood recreation parks, local recreation parks and local linear parks. The *Flagstone Context Area 3 Landscape Masterplan* indicates these open space areas will be constructed landforms with maintained landscapes which will have a low level of discontinuous bushfire fuel. The potential fuel load for VHC 42.6 is lower than VHC 41.4. Therefore, assessment of BAU 1 as VHC 41.4 is a more conservative approach than identifying a separate BAU for areas of VHC 42.6.
BAU 2	VHC 10.1, VHC 40.4 and VHC 41.4	VHC 40.4	BAU 2 is aligned with grass paddocks adjoining the western boundary of the proposed development and proposed lots 91201 and 91003, which are identified in Figure 3.1. Proposed lots 91201 and 91003 are stormwater management allotments that will be constructed landforms which are landscaped with a variety of groundcover species that will result in continuous grassfire fuel.
BAU 3	VHC 10.1, VHC 16.1 and VHC 40.4	VHC 10.1	BAU 3 corresponds with bushland vegetation that will be retained and rehabilitated within the proposed conservation parks, conservation buffer and existing areas of bushland vegetation adjoining the proposed development area. This BMP assumes rehabilitation of the proposed conservation parks identified as BAU 3 will seek to restore the species and structure of the local RE and will correlate with VHC 10.1 as the rehabilitation matures. Where BAU 3 represents bushland vegetation adjoining the proposed development area, the VHC is based on the RE and VHC mapping in Catalyst.
BAU 4	VHC 10.1 and VHC 16.1	VHC 16.1	BAU 4 corresponds with bushland vegetation that will be retained and rehabilitated within the proposed conservation parks, conservation buffer and existing areas of bushland vegetation adjoining the proposed development area. This BMP assumes rehabilitation of the proposed conservation parks identified as BAU 4 will seek to restore the species and structure of the local RE and will correlate with VHC 16.1 as the rehabilitation matures.

Table 3.1 Site observations

BAU	Catalyst VHC	VHC	Notes
			Where BAU 4 represents bushland vegetation adjoining the proposed development area, the VHC is based on the RE and VHC mapping in Catalyst.
BAU 5	VHC 10.1, VHC 16.1 and VHC 28.1	VHC 28.1	BAU 5 corresponds with an existing area of bushland vegetation adjoining part of the western boundary of the proposed development area. Under the approved context plan for Flagstone CA-3, the bushland vegetation within BAU 5 will be retained within the linear open space network. The VHC of BAU 5 is based on the RE and VHC mapping in Catalyst.

Photograph 3.1 Example of VHC 40.4 within BAU 2

Photograph 3.2 Example of VHC 10.1 within BAU 3

Photograph 3.3 Example of VHC 16.1 within BAU 4

Photograph 3.4 Example of VHC 28.1 within BAU 5

3.4 Potential bushfire intensity calculations

The potential bushfire intensity of BAUs was determined using the Queensland Public Safety Business Agency *Potential Bushfire Intensity Calculator* (version November 2014) which is an Excel spreadsheet calculator that models the bushfire hazard assessment method in the BRC guide.

The BRC guide defines bushfire hazard classes as follows:

- very high – potential bushfire intensity > 40,000 kW/m;
- high – potential bushfire intensity 20,000-40,000 kW/m;
- medium – potential bushfire intensity 4,000-20,000 kW/m; and
- non-bushfire hazard – potential bushfire intensity < 4,000 kW/m.

Results of the potential bushfire intensity calculations which determine the bushfire hazard class of BAUs shown in Figure 3.1 are presented in Table 3.2.

Table 3.2 Potential bushfire intensity

BAU	VHC	Potential fuel load tonnes/hectare[1]	Slope (°)[2] and 3	Potential bushfire intensity (kW/m)	Bushfire hazard class
BAU 1	VHC 41.4	3	0	312	Non-bushfire hazard
BAU 2	VHC 40.4	5	9	1,615	Non-bushfire hazard[4]
BAU 3	VHC 10.1	20.8	10	29,948	High
BAU 4	VHC 16.1	16	5	12,394	Medium
BAU 5	VHC 28.1	26.9	5	35,211	High

Notes
1. Potential fuel load taken from the BRC guide.
2. Slope defaults to 0° for VHC 41.4 which is defined in the BRC guide as a low hazard class with discontinuous bushfire fuel.
3. Maximum slope measured within BAU 3, BAU 4 and BAU 5 at the time of the site inspection.
4. VHC 40.4 is defined in the BRC guide as grassfire prone.

3.5 Bushfire hazard areas

Results of the potential bushfire intensity calculations in Table 3.2 confirm the proposed development is affected by medium and high potential bushfire intensity areas and the 100 m potential impact buffer which is applied to these areas. Therefore, the proposed development is within a bushfire hazard area and the development application is subject to compliance with the Bushfire overlay code.

4 Bushfire hazards associated with the site

This chapter identifies bushfire hazards associated with the site.

4.1 Fire danger season

The fire danger season at the site starts in August, peaks in September and will begin to fall when consistent summer rainfall occurs. Typically, the worst fire weather conditions will be experienced during the fire danger season when the wind direction is from the north or west.

An FFDI of 56 will be associated with hot, dry and windy conditions. If a bushfire starts and takes hold under these conditions, it will be difficult to control and fast moving in large areas of unmanaged vegetation.

4.2 Fire history

As discussed in Section 3.2, fire history data indicates land adjoining the site regularly burns. Given that large areas of bushland vegetation remain in the landscape adjacent to the site, it is considered possible the proposed development could be exposed to bushfire attack in the future. Notwithstanding, the possibility of exposure is likely to diminish over time as development occurs within the Greater Flagstone urban development area.

4.3 Potential directions of bushfire attack

The proposed development could be exposed to bushfire attack and grassfire attack from land within and adjoining the site. These bushfire and grassfire attack scenarios are identified in Figure 3.1 and are further analysed in Section 5.12.

4.4 Potential bushfire hazards from adjacent land uses

The retention or rehabilitation of bushland vegetation for conservation purposes, either within or adjoining the site, is the main potential bushfire hazard to the proposed development. This is confirmed by the potential bushfire intensity calculations in Section 3.4, which determined BAU 3, BAU 4 and BAU 5 are medium and high potential bushfire intensity areas.

4.5 Water and access for emergency services

As development progresses within Flagstone CA-3, the site will be provided with a mains water supply and road network which will service occupant and emergency service requirements.

5 Bushfire hazards associated with the proposed development

This chapter identifies potential bushfire hazards associated with the proposed development.

5.1 Siting and design

The proposed development will be designed to mitigate the risk of bushfire hazard determined by the bushfire hazard assessment in this BMP.

The topography of the site and adjoining land is mostly undulating and does not involve landscape features that exacerbate the risk of bushfire hazard and influence the layout of the proposed development.

The exception is the slope affected land in the central part of the site which is identified by the approved Flagstone CA-3 context plan. Most of the slope affected land will be developed with large residential allotments, ie the proposed ridgetop allotments in stage 13, which will be maintained free of hazardous vegetation. However, a conservation park, ie proposed lot 91304, will also be established on the slope affected land. It is identified as part of BAU 3 in Figure 3.1 and was assessed as a bushfire hazard area in Section 3.4.

5.2 Land use

The proposed development includes super allotments for a local centre, district centre, ambulance station, childcare centres, community centre, state primary school, medium density residential and a balance allotment.

The ambulance station, childcare centres and state primary school are defined as vulnerable uses in Table 7 of the SPP guidance material – bushfire. The ambulance station and state primary school are also defined as community infrastructure for essential services.

The local centre and district centre could involve the future development of retail service stations which are defined as hazardous materials in the context of bushfire hazard in Table 7 of the SPP guidance material – bushfire.

In most situations, the proposed super allotments do not adjoin areas of hazardous vegetation that will be retained or rehabilitated for conservation purposes, ie BAU 3, BAU 4 and BAU 5 shown in Figure 3.1. However, where this situation does occur, development footprints for vulnerable uses and hazardous materials in the context of bushfire hazard will be separated from hazardous vegetation by the distance required for compliance with the Bushfire overlay code and BRC guide.

5.3 Parks

The proposed sports parks (regional and district) and recreation parks (neighbourhood, local and linear) will be landscaped in accordance with the *Flagstone Context Area 3 Landscape Masterplan.* They will be maintained in perpetuity and will have low levels of discontinuous bushfire fuel. As a result, they can be relied upon to provide a setback between areas of hazardous vegetation and the boundaries of the proposed allotments or development footprints within the proposed allotments.

5.4 Conservation buffer and Conservation parks

Bushland vegetation will be retained and rehabilitated within the proposed conservation buffer and conservation parks shown in the overall plan of subdivision in Appendix 3. They occur within the areas identified as BAU 3 and BAU 4 in Figure 3.1 and were assessed as a bushfire hazard area in Section 3.4.

In most circumstances the boundaries of the proposed allotments will be separated from the proposed conservation buffer and conservation parks by roads and parks, which are described in Section 5.3.

Where this outcome is not possible or does not provide an appropriate separation distance from hazardous vegetation, development footprints within the proposed allotments will be separated from the hazardous vegetation by asset protection zones (**APZs**) within the proposed allotments.

Alternatively, Peet Flagstone City Pty Ltd (**PEET**) may seek to install landscaping treatments which can provide separation from hazardous vegetation within the conservation parks. This would be done as an amendment to the BMP through an application to change the anticipated development approval.

5.5 Stormwater management areas

The proposed stormwater management allotments shown in the overall plan of subdivision in Appendix 3 will be constructed landforms which are finished with landscaping.

Where the proposed stormwater management allotments are located adjacent to proposed residential allotments, ie proposed lots 91201 and 91003, they will be landscaped with a continuous cover of groundcover species, ie grass, reeds, sedges and lilies, which will result in continuous grassfire fuel that has potential to carry a surface fire.

Where the proposed stormwater management allotments are located adjacent to conservation buffers and conservation parks their landscaping will include a variety of species from the local RE which will result in continuous bushfire fuel that has potential to carry a bushfire.

In most circumstances the boundaries of the proposed residential allotments will be separated from the proposed stormwater management allotments by roads. Where this outcome is not possible or does not provide an appropriate separation distance from hazardous vegetation, access pathways and landscaping will be used to provide separation between hazardous vegetation and residential allotment boundaries.

5.6 Proposed ridgetop allotments in stage 13

The proposed ridgetop allotments in stage 13, ie proposed lots 4134-4138, 4145-4146 and 4189-4202, have a combined area > 6 hectares and potential to result in a bushfire hazard area if they are not appropriately landscaped and maintained with a low level of discontinuous bushfire fuel.

5.7 Future development adjoining the eastern boundary of the site

This BMP has assessed vegetation adjoining the eastern boundary of the site as though it appeared at the time of the site inspection.

Notwithstanding, future development in accordance with existing approved context plans, ie Flagstone CA-1 and CA-3 context plans, and proposed context plans, ie DEV2023/1413, will result in the removal of most of the bushland vegetation adjoining the eastern boundary of the site.

Of importance to this BMP, uncertainty remains about the potential retention of a large patch of bushland vegetation between the proposed arterial road and proposed lots 3740-3759 within stage 12.

5.8 Future development adjoining the western boundary of the site

This BMP has assessed vegetation adjoining the western boundary of the site as though it appeared at the time of the site inspection.

The approved Flagstone CA-3 context plan confirms that most of the existing areas of bushland vegetation which adjoin the western boundary of the site will be retained within the linear open space network. These areas of bushland are identified as part of BAU 3 and BAU 5 in Figure 3.1 and were

assessed as bushfire hazard areas in Section 3.4. The boundaries of proposed allotments are separated from these bushfire hazard areas by roads.

5.9 Fire-fighter water supply

The proposed development will be connected to mains water and a hydrant system will be installed in the new road reserves.

5.10 Roads

Access and egress for the proposed development will be via connections to the future arterial road along the eastern boundary of the site, ie New Beith Road, and the road network within the north part of Flagstone CA-3 via a connection through the Flagstone Creek corridor. The proposed new road network will be designed and constructed in accordance with the design criteria for an urban fire truck.

In most situations, esplanade roads have been used to separate the proposed allotments from areas of hazardous vegetation, ie BAU 3, BAU 4 and BAU 5 shown in Figure 3.1. Esplanade roads will reduce the level of radiant heat exposure at allotment boundaries and also provide a water supply, ie hydrants, and unrestricted access for emergency services to undertake property protection and bushfire management activities.

5.11 Bushfire warnings and evacuation

Emergency management of bushfires is the responsibility of the QFD. They are responsible for the national bushfire warning system in Queensland which advises the community of the actions they need to take under certain fire weather conditions and during a bushfire emergency. The warning system is communicated via mainstream media, ie TV and radio, and social media platforms.

5.12 Radiant heat exposure

The Bushfire overlay code provides guidance about the acceptable level of radiant heat exposure for development within a bushfire hazard area. It requires development to provide allotment boundaries or development footprints that are separated from hazardous vegetation by a distance which achieves a radiant heat flux level ≤ 29 kW/m^2 at the allotment boundaries or development footprint.

Where development involves a vulnerable use, community infrastructure for essential services or hazardous materials in the context of bushfire hazard, the Bushfire overlay code seeks for the development to not be located within 100 m of a bushfire hazard area. Where this outcome is not possible, ie there is no suitable alternate location or there is an overwhelming community need, the Bushfire overlay code defers to the BRC guide which requires the development footprint of these uses to be separated from hazardous vegetation by a distance which achieves a radiant heat flux level ≤ 10 kW/m^2 at the development footprint.

As discussed in Section 4.3, the proposed development could be exposed to the bushfire and grassfire attack scenarios which are identified in Figure 3.1. The radiant heat profile of these bushfire and grassfire attack scenarios was analysed with the BAL calculator. Inputs used in the BAL calculator and results are provided in Appendix 6.

Results of the radiant heat exposure assessment in Appendix 6 have been used in Section 6.1 to specify the width of APZs within the proposed allotments which adjoin hazardous vegetation, ie BAU 2, BAU 3, BAU 4 and BAU 5 shown in Figure 3.1. The APZs have been designed for development footprints to achieve a radiant heat flux level ≤ 29 kW/m^2 within residential allotments and a radiant heat flux level ≤ 10 kW/m^2 within super allotments involving vulnerable uses, community infrastructure for essential services or hazardous materials in the context of bushfire hazard.

6 Bushfire mitigation plan

This chapter identifies mitigation measures that must be implemented as part of the proposed development to comply with the Bushfire overlay code.

It is the total of the mitigation measures in this chapter that will reduce the risk of bushfire hazard to a tolerable level. Failure to implement all actions in their entirety could result in an increased level of exposure to bushfire hazards.

6.1 Asset protection zones

A 29 kW/m^2 APZ must be established within proposed residential lots 3475, 3559 to 3566, 4206-4210, 4218-4226, and 4229-4238 and proposed medium density lot 50041 as shown in Figure 6.3, 6.6 and 6.7.

A 10 kW/m^2 APZ must be established within proposed state primary school lot 30015, childcare lots 50036 and 50037 and conservation park lot 90901 as shown in Figures 6.1 and 6.2.

The APZs must be surveyed and pegged and shown in survey plans and disclosure plans for the affected allotments.

Buildings and structures, other than a driveway, swimming pool, lawn locker style garden sheds, water tank, fencing or retaining wall, must not be located within the 29 kW/m^2 APZ. If these structures are located within the 29 kW/m^2 APZ, they must be constructed with fire resisting materials.

In the case of proposed state primary school lot 30015, driveways, carparks and sports fields are permitted within the 10 kW/m^2 APZ. In the case of proposed childcare lots 50036 and 50037, an outdoor play area and play equipment is permitted. Otherwise, no buildings or structures are permitted within the 10 kW/m^2 APZ.

Within the proposed allotments affected by an APZ, buildings and landscaping must be designed to provide access for emergency services to walk from the road to the APZ and along the interface of the APZ and hazardous vegetation.

The prospective purchasers of proposed allotments affected by an APZ must be notified about the effects of the APZ on building and landscaping within the allotments at the point of sale.

As stated in Section 5.4, PEET may seek to install landscaping treatments which can provide separation from hazardous vegetation within the proposed conservation parks. This would be done as an amendment to the BMP through an application to change the anticipated development approval.

6.2 Asset protection zone within proposed conservation park lot 90901

Landscaping within the APZ in proposed conservation park lot 90901 must be in accordance with the *Flagstone Context Area 3 Landscape Masterplan* and established as turf. The turf must be maintained as lawn at a nominal height of ≤ 100 millimetres (**mm**).

The local council will be responsible for maintaining the APZ in proposed conservation park lot 90901 in perpetuity.

6.3 Proposed residential lots 3740-3757 within Stage 12

Construction of proposed residential lots 3740-3759 within stage 12 must be deferred until there is certainty about the design of the arterial road corridor, including the final constructed landform, retention or clearing of hazardous vegetation, landscaping and the installation of noise attenuation barriers. Proposed residential allotments 3740-3759 are shown in Figure 6.5.

6.4 Landscaping

Landscaping within the proposed residential allotments must be designed and maintained in accordance with Part 5 of *Bushfire Resilient Building Guidance for Queensland Homes* (QRA 2020) (**Bushfire resilient building**) which is publicly available online. Plant selection must favour the list of plant species in Appendix E of Bushfire resilient building.

Landscaping within the proposed sports parks (regional and district) and recreation parks (neighbourhood, local and linear) must be in accordance with the *Flagstone Context Area 3 Landscape Masterplan* and result in a low level of discontinuous fuel.

Landscaping must be maintained at regular time intervals throughout the calendar year. Woody regrowth, weeds, rubbish and vegetation debris must be removed, and areas of turf must be maintained as lawn at a nominal height of < 100 mm.

6.5 Proposed lot 91201

An 8 m wide maintenance access path or area landscaped with turf must be established and maintained with the proposed stormwater management lot 91201 along the boundary of proposed lots 3559, 3566 and 3740 as shown in Figures 6.3 and 6.5.

If the area is landscaped with turf, it must be maintained as lawn at a nominal height of ≤ 100 mm. The local council will be responsible for maintaining the turf in perpetuity.

6.6 Proposed ridgetop allotments in stage 13

The proposed ridgetop allotments in stage 13, ie proposed lots 4134-4138, 4145-4146 and 4189-4202, are identified in Figure 6.6.

Development footprints within the proposed ridgetop allotments must be located immediately adjacent to the new road which provides efficient access and hydrants for emergency services. Development footprints with long driveways must not be permitted

Vegetation within the proposed ridgetop allotments must be maintained with a low level of discontinuous bushfire fuel, ie lawn maintained at a nominal height ≤ 100 mm. The proliferation of weeds or woody regrowth must not be permitted. Landscaping design and maintenance must be in accordance with Section 6.4.

Existing mature canopy trees can be retained within the proposed ridgetop allotments unless they overhang development footprints.

6.7 Hazardous materials

Future development involving a retail service station must be separated from hazardous vegetation by a distance which achieves a radiant heat flux level ≤ 10 kW/m^2 at the development footprint.

6.8 Fire-fighting water supply

The proposed allotments must be connected to mains water and a hydrant system must be installed in the new road reserves.

The mains water supply and connection must be in accordance with the local water retailer's specifications for supply and pressure.

The hydrant system must be designed and constructed in accordance with *Fire hydrant and Vehicle Access Guidelines for Residential, Commercial and Industrial lots* (QFES 2019b) (**Fire hydrant and**

vehicle access guidelines) which defers to the local water retailer's specifications and the *Australian Standard* (**AS 2419.1-2021**) *Fire hydrant installations, System design, installation and commissioning.*

Where there are differences between the local water retailer's specifications and AS 2419.1-2021, the higher-level standard should prevail.

6.9 Access and egress

New roads must be designed and constructed for an urban fire truck in accordance with Fire hydrant and vehicle access guidelines which defers to the *Road Planning and Design Manual – 2nd Edition* (DTMR 2013) for load bearing capacity, geometry and turning radii.

6.10 Prospective purchaser notification

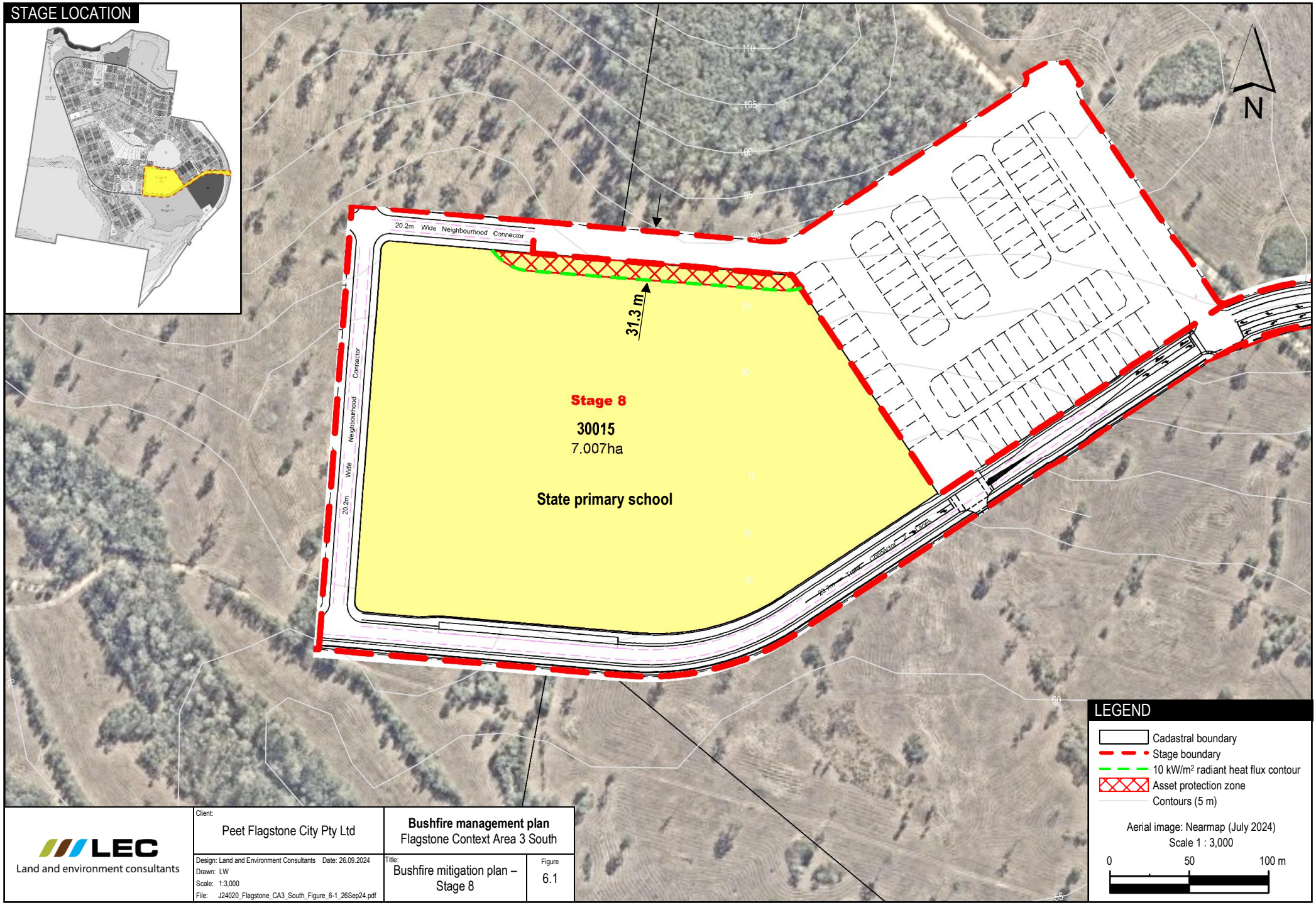
The prospective purchasers of the proposed allotments must be notified about the effects of this BMP at the point of sale.

The prospective purchaser notification must include advice about the BAL rating of the proposed residential allotments. The proposed residential allotments are in a 'designated bushfire prone area' under Section 7 of the Queensland *Building Regulation 2021* and provisions of the *National Construction Code* (ABCB 2022) and the *Queensland Development Code* (QG 2021) that apply to a designated bushfire prone area will apply to any building assessment work within them. This will include compliance with BAL design and construction specifications in AS 3959-2018.

A BAL rating is a matter relevant to a building application. Therefore, it is appropriate that this matter is dealt with outside of the development application process and this BMP.

6.11 Service installation

Reticulated services, ie water, electricity, gas and communications, must be installed underground.



LEC
Land and environment consultants

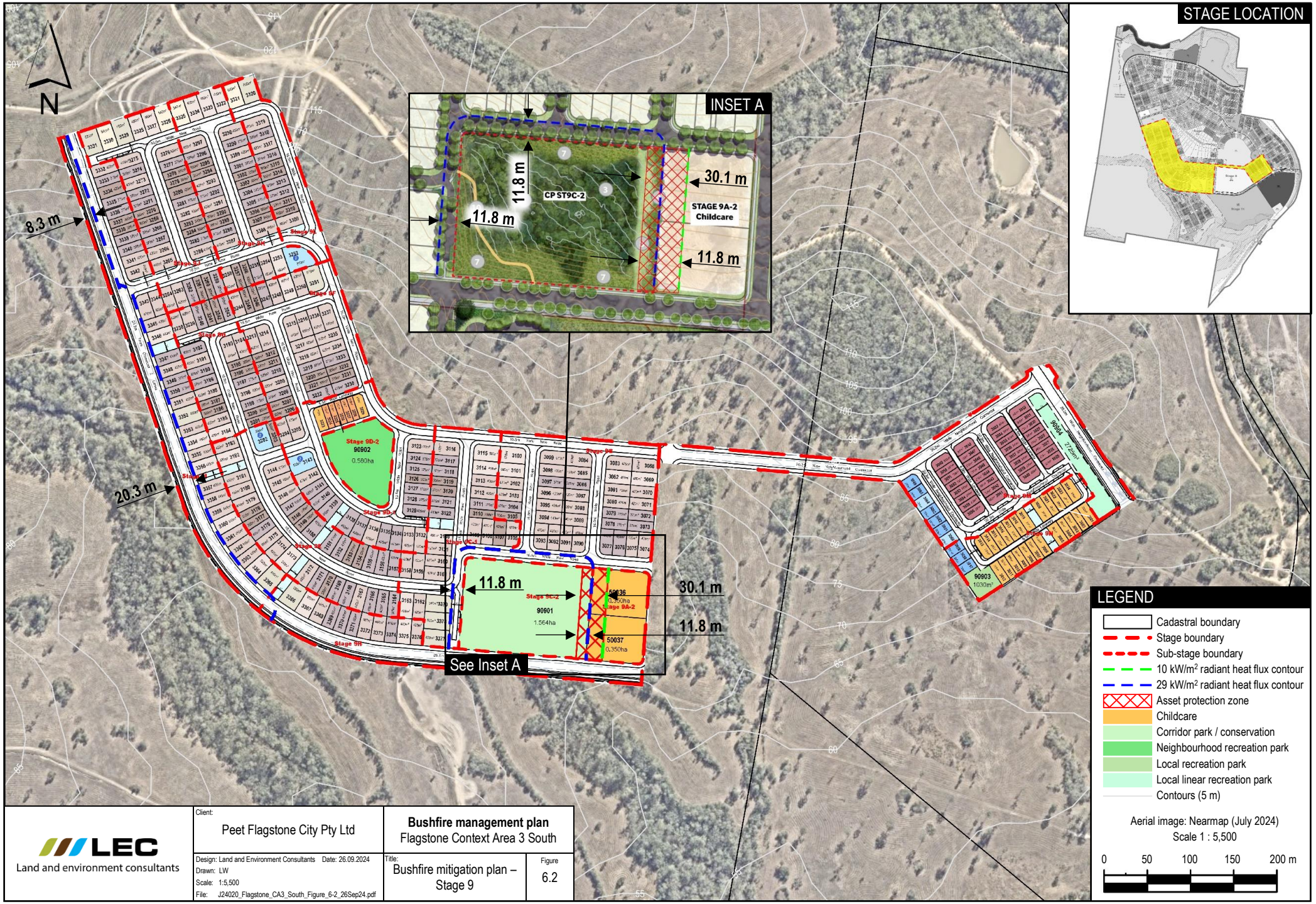
Client: Peet Flagstone City Pty Ltd

Bushfire management plan
Flagstone Context Area 3 South

Design: Land and Environment Consultants Date: 26.09.2024
Drawn: LW
Scale: 1:3,000
File: J24020_Flagstone_CA3_South_Figure_6-1_26Sep24.pdf

Title: Bushfire mitigation plan – Stage 8

Figure 6.1



LEC
Land and environment consultants

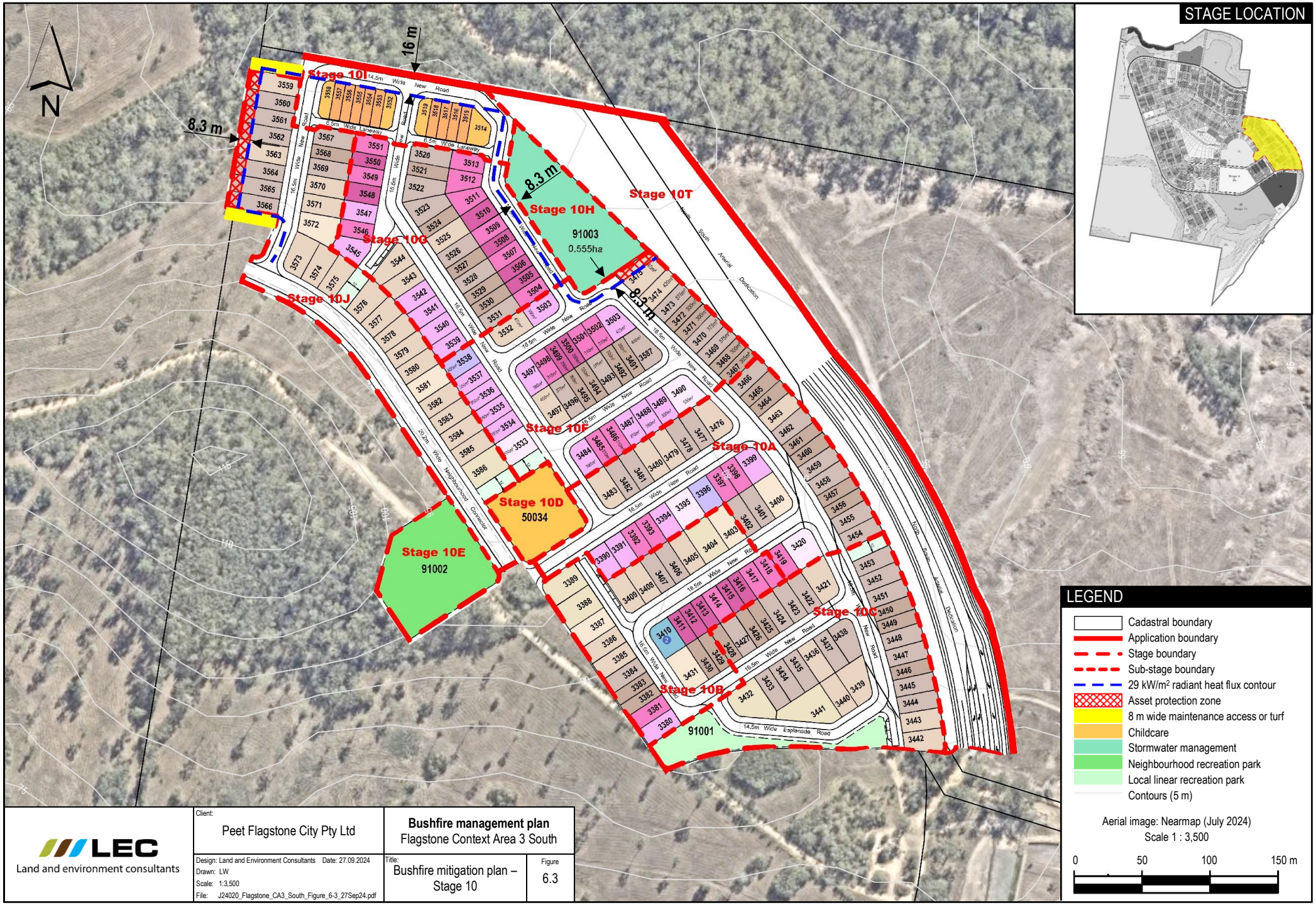
Client: Peet Flagstone City Pty Ltd

Bushfire management plan
Flagstone Context Area 3 South

Design: Land and Environment Consultants Date: 26.09.2024
Drawn: LW
Scale: 1:5,500
File: J24020_Flagstone_CA3_South_Figure_6-2_26Sep24.pdf

Title: Bushfire mitigation plan – Stage 9

Figure 6.2



LEC
Land and environment consultants

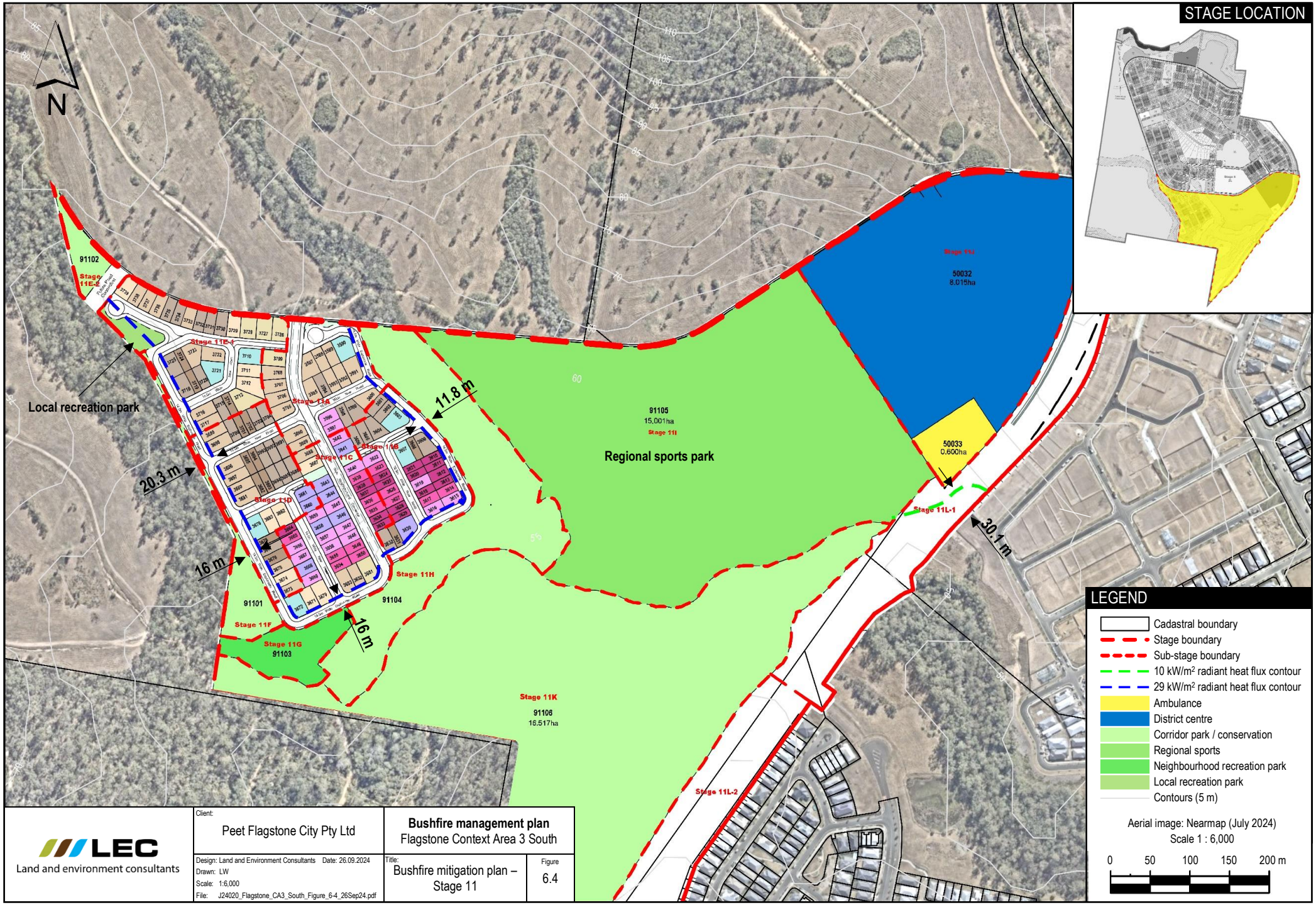
Client: Peet Flagstone City Pty Ltd

Bushfire management plan
Flagstone Context Area 3 South

Design: Land and Environment Consultants Date: 27.09.2024
Drawn: LW
Scale: 1:3,500
File: J24020_Flagstone_CA3_South_Figure_6-3_27Sep24.pdf

Title: Bushfire mitigation plan – Stage 10

Figure 6.3



LEC
Land and environment consultants

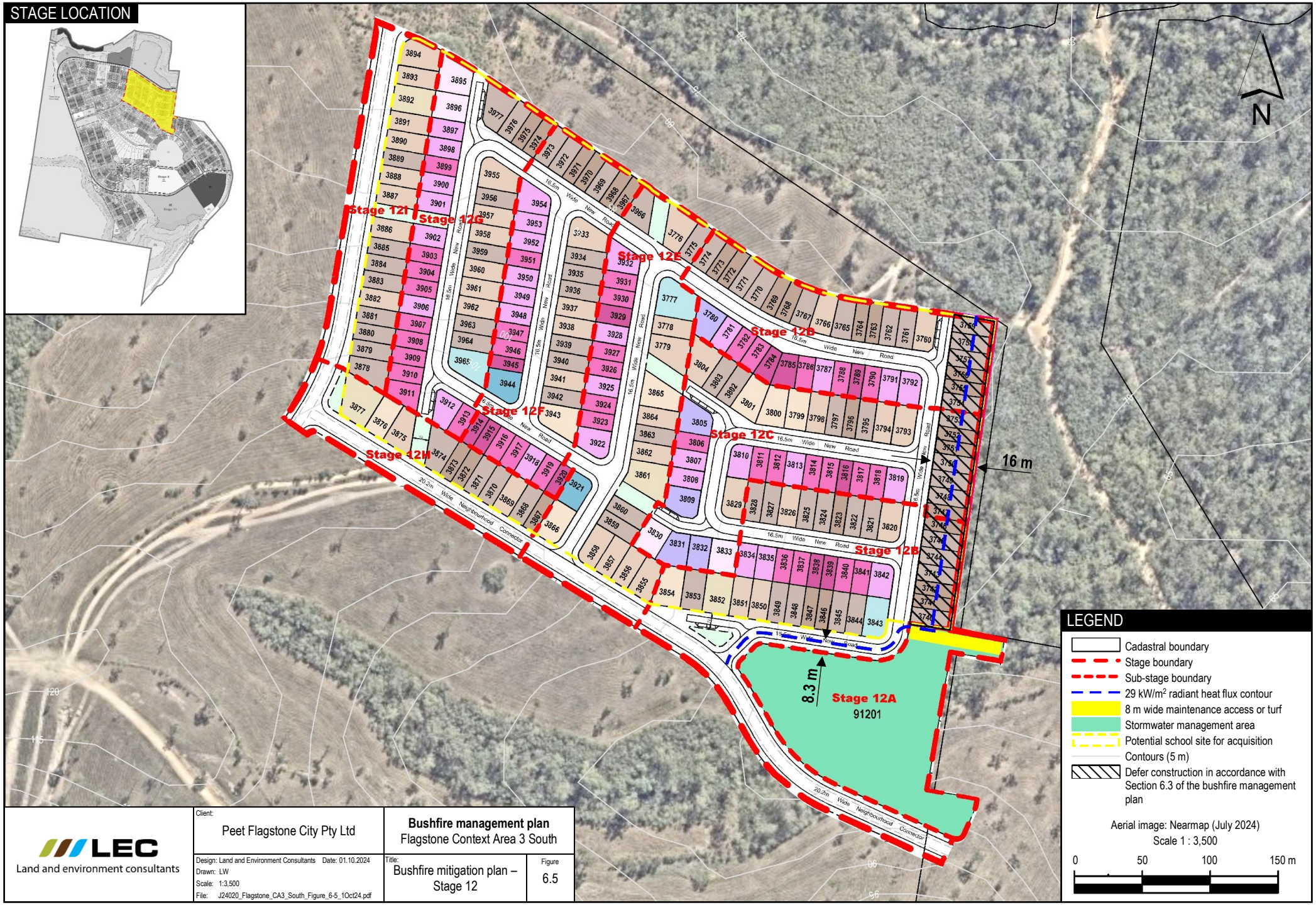
Client: Peet Flagstone City Pty Ltd

Bushfire management plan
Flagstone Context Area 3 South

Design: Land and Environment Consultants Date: 26.09.2024
Drawn: LW
Scale: 1:6,000
File: J24020_Flagstone_CA3_South_Figure_6-4_26Sep24.pdf

Title: Bushfire mitigation plan – Stage 11

Figure 6.4



LEC
Land and environment consultants

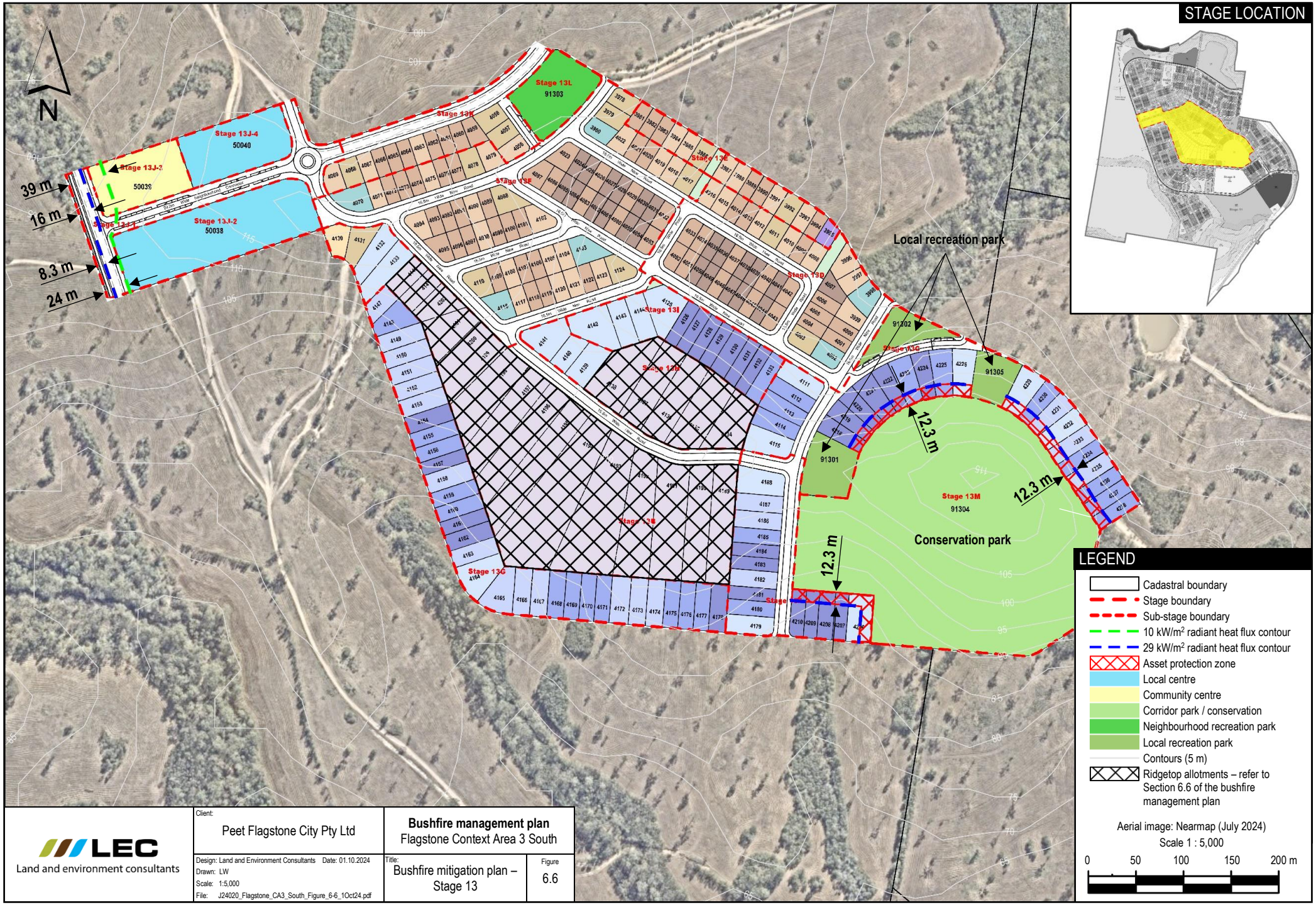
Client: Peet Flagstone City Pty Ltd

Bushfire management plan
Flagstone Context Area 3 South

Design: Land and Environment Consultants Date: 01.10.2024
Drawn: LW
Scale: 1:3,500
File: J24020_Flagstone_CA3_South_Figure_6-5_1Oct24.pdf

Title: Bushfire mitigation plan – Stage 12

Figure 6.5



LEC
Land and environment consultants

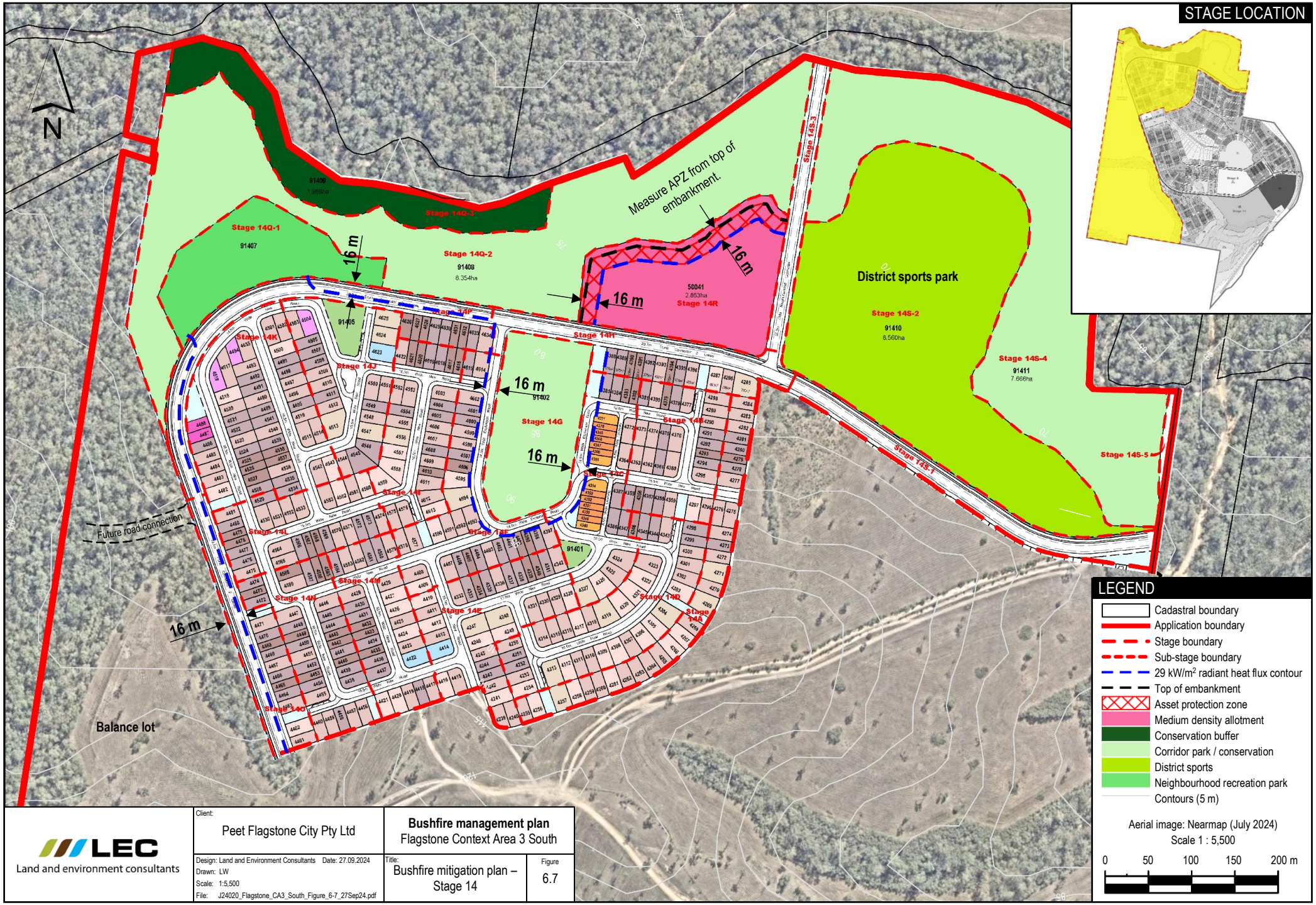
Client: Peet Flagstone City Pty Ltd

Bushfire management plan
Flagstone Context Area 3 South

Design: Land and Environment Consultants Date: 01.10.2024
Drawn: LW
Scale: 1:5,000
File: J24020_Flagstone_CA3_South_Figure_6-6_1Oct24.pdf

Title: Bushfire mitigation plan – Stage 13

Figure 6.6



LEC
Land and environment consultants

Client: Peet Flagstone City Pty Ltd

Bushfire management plan
Flagstone Context Area 3 South

Design: Land and Environment Consultants Date: 27.09.2024
Drawn: LW
Scale: 1:5,500
File: J24020_Flagstone_CA3_South_Figure_6-7_27Sep24.pdf

Title: Bushfire mitigation plan – Stage 14

Figure 6.7

7 Conclusion

This BMP was prepared by a suitably qualified person and is in general accordance with the SPP guidance material – bushfire and BRC guide.

A bushfire hazard assessment determined the site is within a bushfire hazard area and the proposed development is subject to compliance with the Bushfire overlay code.

Mitigation measures that must be implemented as part of the proposed development are specified in Chapter 6. With the implementation of these mitigation measures the proposed development complies with the Bushfire overlay code as demonstrated in Appendix 7.

References

Australian Building Codes Board (ABCB) 2022, *National Construction Code Series, Building Code of Australia Class 1 and Class 10 Buildings*, Australian Government and States and Territories of Australia, adopted May 2023

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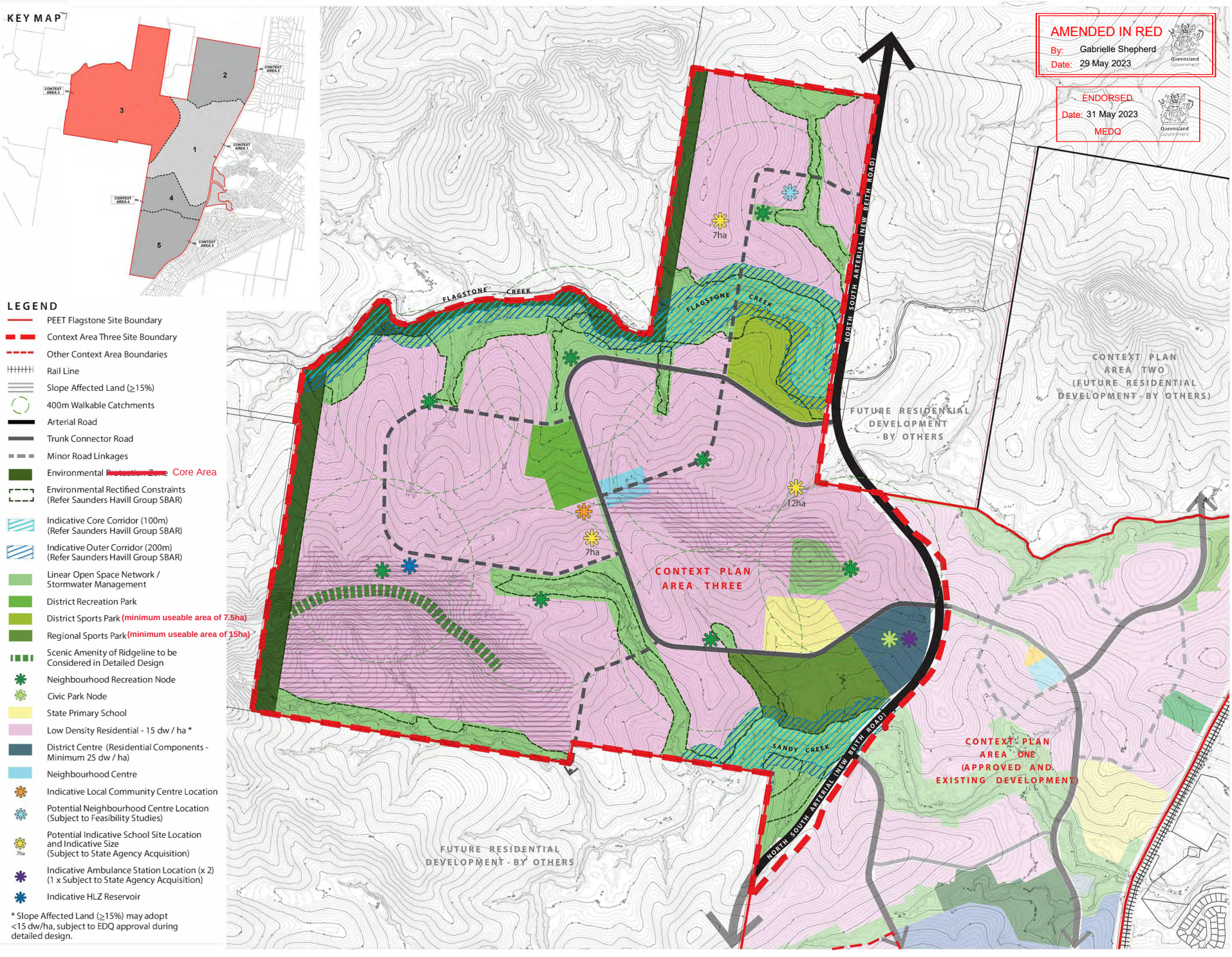
Standards Australia Limited (Standards Australia) 2018, *Australian Standard 3959-2018 Construction of buildings in bushfire prone areas*, Fourth edition, November 2018

Appendix 1 Approved Flagstone CA-3 context plan


KEY MAP
CONTEXT AREA 1
CONTEXT AREA 2
CONTEXT AREA 3
CONTEXT AREA 4
CONTEXT AREA 5
1
2
3
4
5
LEGEND
PEET Flagstone Site Boundary
Context Area Three Site Boundary
Other Context Area Boundaries
Rail Line
Slope Affected Land (≥15%)
400m Walkable Catchments
Arterial Road
Trunk Connector Road
Minor Road Linkages
Environmental ~~Protection Zone~~ Core Area
Environmental Rectified Constraints (Refer Saunders Havill Group SBAR)
Indicative Core Corridor (100m) (Refer Saunders Havill Group SBAR)
Indicative Outer Corridor (200m) (Refer Saunders Havill Group SBAR)
Linear Open Space Network / Stormwater Management
District Recreation Park
District Sports Park (minimum useable area of 7.5ha)
Regional Sports Park (minimum useable area of 15ha)
Scenic Amenity of Ridgeline to be Considered in Detailed Design
Neighbourhood Recreation Node
Civic Park Node
State Primary School
Low Density Residential - 15 dw / ha *
District Centre (Residential Components - Minimum 25 dw / ha)
Neighbourhood Centre
Indicative Local Community Centre Location
Potential Neighbourhood Centre Location (Subject to Feasibility Studies)
Potential Indicative School Site Location and Indicative Size (Subject to State Agency Acquisition)
Indicative Ambulance Station Location (x 2) (1 x Subject to State Agency Acquisition)
Indicative HLZ Reservoir
* Slope Affected Land (≥15%) may adopt <15 dw/ha, subject to EDQ approval during detailed design.
AMENDED IN RED
By: Gabrielle Shepherd
Date: 29 May 2023
Queensland Government
ENDORSED
Date: 31 May 2023
MEDQ
Queensland Government
FLAGSTONE
CONTEXT AREA 3
CONTEXT PLAN
PLAN REF: 110056-499F
DATE: 03 FEBRUARY 2023
CLIENT: PEET
DRAWN BY: MO
CHECKED BY: DG
FLAGSTONE CREEK
NORTH SOUTH ARTERIAL (NEW BEITH ROAD)
7ha
12ha
7ha
CONTEXT PLAN AREA THREE
FUTURE RESIDENTIAL DEVELOPMENT - BY OTHERS
CONTEXT PLAN AREA TWO (FUTURE RESIDENTIAL DEVELOPMENT - BY OTHERS)
CONTEXT PLAN AREA ONE (APPROVED AND EXISTING DEVELOPMENT)
SANDY CREEK
FUTURE RESIDENTIAL DEVELOPMENT - BY OTHERS
DISCLAIMER
URBAN DESIGN
RPS
© COPYRIGHT PROTECTS THIS PLAN

Appendix 2 Proposed context plan DEV2023/1413

Context Plan (Overall)

NOT TO BE USED FOR ENGINEERING DESIGN OR CONSTRUCTION

NOTES

This plan was prepared as a conceptual layout only. The information on this plan is not suitable for any other purpose.

Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions.

No reliance should be placed on the information on this plan for detailed subdivision design or for any financial dealings involving the land.

Pavements and centrelines shown are indicative only and are subject to Engineering Design.

Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

LEGEND

- Site Boundary
- Land Dedication (30m Railway Corridor)

ZONING
- Education
- District Centre
- Neighbourhood Centre
- Mixed Use/Railway Station
- High Density Residential Neighbourhood (min density 30 dw/Ha)
- Mixed Residential Neighbourhood (15-30 dw/Ha)
- Urban Residential Neighbourhood (min 15dw/Ha)
- Active Living/Retirement Precinct
- Medium Density Precinct

GREENSPACE
- Environmental Open Space
- Environmental Protection Area in accordance with Endorsed Natural Environment Overarching Site Strategy
- Recreation Park
- Sports Park
- Pedestrian Link
- Neighbourhood Recreation Park (Possible Location)
- 400m Catchment Offset
- Indicative Pathway Network
- Regional
- District
- Indicative Location of Civic Park

ROAD NETWORK
- Controlled Intersection - Possible Roundabout
- Controlled Intersection - Possible Signalised Intersection
- Urban Arterial Multi Modal Dual Carriageway - in accordance with the Endorsed Movement IMP
- Trunk Connector - in accordance with the Endorsed Movement IMP
- Centre Access Street - in accordance with the Endorsed Movement IMP
- Neighbourhood Connector - in accordance with the Endorsed Movement IMP
- Access Road frontage to School
- Closed Road
- Proposed Bus Stop Location

SERVICES & OTHER
- Future New Beith Railway Station
- Fire and Rescue Station
- Existing Regional Water Reservoir (RWR)
- Potential Park & Ride Facility
- Potential State Primary School
- Interface Lots
- Interface Zone
- Easement for Sewer Purposes
- Easement for Access (Sewer)
- Sewer Pump Station (SP)
- Potential Reservoir - Option 1
- Potential Urban Residential Neighbourhood (Alternative Use)

SCALE @A1 1:7500 @A3 1:15000 - LENGTHS ARE IN METRES

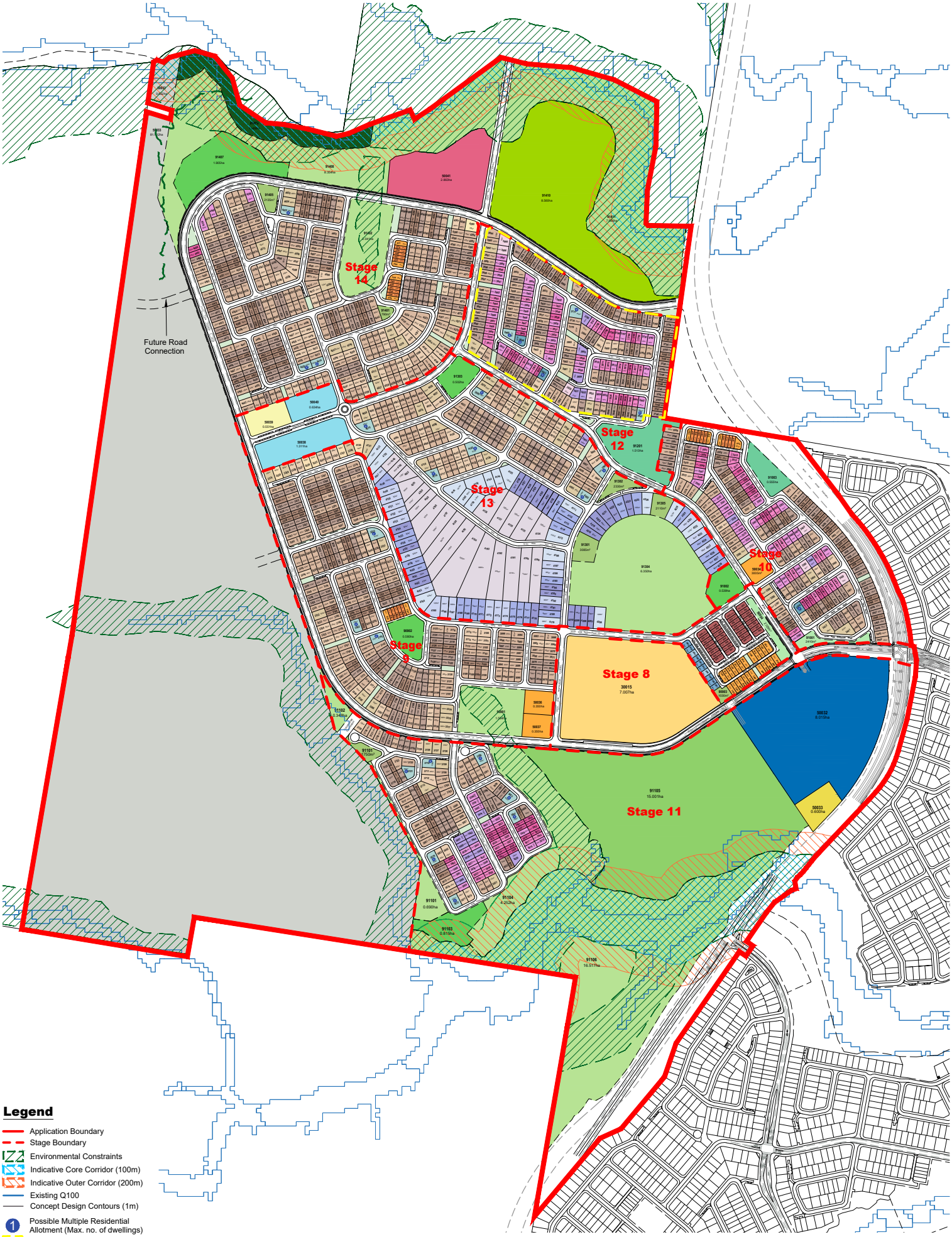
100 0 100 200 300 400 500 600 700 800 900

saunders havill group

NEW BEITH PTY LTD

NEW BEITH ROAD, NEW BEITH ● 25/05/2023 ● 8905 P 17 Rev E - SK 01

Appendix 3 Overall plan of subdivision



Legend

- Application Boundary
- Stage Boundary
- Environmental Constraints
- Indicative Core Corridor (100m)
- Indicative Outer Corridor (200m)
- Existing Q100
- Concept Design Contours (1m)
- 1 Possible Multiple Residential Allotment (Max. no. of dwellings)
- Potential School Site for Acquisition (12ha)

TO BE READ IN CONJUNCTION WITH 110056-640A STAGES 8-14 OVERALL STATISTICS

PLAN REF:	**110056 – 639**
Rev No:	**A**
DATE:	30 AUGUST 2024
CLIENT:	PEET
DRAWN BY:	JC / MM
CHECKED BY:	MD

0 100 200 300 400 500 **1 : 7,500 @ A3**

FLAGSTONE CA3 SOUTH
STAGES 8 - 14
OVERALL PLAN OF SUBDIVISION

PEET

URBAN DESIGN
Level 8
31 Duncan Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3539 9500
W rpsgroup.com

A TETRA TECH COMPANY

CA3 SOUTH - Stage 8 - 14 Yield Breakdown

Lot Type	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13	Stage 14	Overall	
	Yield	Yield	Yield	Yield	Yield	Yield	Yield	Yield	%
25m Deep Product									
Premium Villa 12.5m Allotment	—	8	—	—	—	—	—	8	**0%**
Courtyard 14m Allotment	—	2	—	—	—	—	—	2	**0%**
Subtotal	**—**	**10**	**—**	**—**	**—**	**—**	**—**	**10**	**1%**
25m Deep Terrace Product									
Terrace 9.5m Allotment	—	32	—	—	—	—	—	32	**2%**
Subtotal	**—**	**32**	**—**	**—**	**—**	**—**	**—**	**32**	**2%**
25m Deep Product									
Villa 10m Allotment	—	—	13	16	11	—	—	40	**2%**
Premium Villa 12.5m Allotment	—	—	23	13	38	—	2	76	**5%**
Courtyard 14m Allotment	—	—	22	17	30	—	3	72	**4%**
Premium Courtyard 16m Allotment	—	—	2	9	5	1	—	17	**1%**
Premium Traditional 20m Allotment	—	—	4	—	4	—	—	8	**0%**
Possible Multiple Residential Allotment	—	—	1	—	2	—	—	3	**0%**
Subtotal	**—**	**—**	**65**	**55**	**90**	**1**	**5**	**216**	**13%**
28m Deep Terrace Product									
Terrace 7.5m Allotment	—	5	9	—	—	—	10	24	**1%**
Terrace 9.5m Allotment	—	26	4	—	—	—	4	34	**2%**
Subtotal	**—**	**31**	**13**	**—**	**—**	**—**	**14**	**58**	**4%**
30m Deep Product									
Villa 10m Allotment	—	58	30	13	27	—	50	178	**11%**
Premium Villa 12.5m Allotment	—	88	51	29	66	23	110	367	**23%**
Courtyard 14m Allotment	—	117	39	33	40	63	153	445	**27%**
Premium Courtyard 16m Allotment	—	25	6	10	8	35	45	129	**8%**
Traditional 18m Allotment	—	4	—	—	—	1	—	5	**0%**
Premium Traditional 20m Allotment	—	10	6	6	4	15	16	57	**4%**
Possible Multiple Residential Allotment	—	3	—	7	3	6	3	22	**1%**
Subtotal	**—**	**305**	**132**	**98**	**148**	**143**	**377**	**1203**	**74%**
50m+ Deep Product									
Courtyard 14m Allotment	—	—	—	—	—	25	—	25	**2%**
Premium Courtyard 16m Allotment	—	—	—	—	—	25	—	25	**2%**
Traditional 18m Allotment	—	—	—	—	—	20	—	20	**1%**
Premium Traditional 20m Allotment	—	—	—	—	—	18	—	18	**1%**
Ridgetop Allotment	—	—	—	—	—	21	—	21	**1%**
Subtotal	**—**	**—**	**—**	**—**	**—**	**109**	**—**	**109**	**7%**
Total Residential Allotments	**—**	**378**	**210**	**153**	**238**	**253**	**396**	**1628**	**100%**
Residential Net Density	**—**	**16.3 dw/ha**	**15.5 dw/ha**	**13.7 dw/ha**	**14.8 dw/ha**	**8.9 dw/ha**	**15.1 dw/ha**	**13.6 dw/ha**	
Super Lots									
Local Centre	—	—	—	—	—	2	—	2	
District Centre	—	—	—	1	—	—	—	1	
Ambulance	—	—	—	1	—	—	—	1	
Child Care	—	2	1	—	—	—	—	3	
Community Centre	—	—	—	—	—	1	—	1	
State Primary School	1	—	—	—	—	—	—	1	
Medium Density Allotment	—	—	—	—	—	—	1	1	
Balance Allotment	—	—	—	—	—	—	2	2	
Subtotal	**1**	**2**	**1**	**2**	**—**	**3**	**3**	**12**	
Total Allotments	**1**	**380**	**211**	**155**	**238**	**256**	**399**	**1640**	
Maximum Potential Residential Dwellings (Includes Multiple Residential Allotments)	**—**	**381**	**211**	**165**	**246**	**264**	**401**	**1668**	
Maximum Potential Net Residential Density	**—**	**16.4 dw/ha**	**15.5 dw/ha**	**14.8 dw/ha**	**15.3 dw/ha**	**9.3 dw/ha**	**15.3 dw/ha**	**14.0 dw/ha**	

CA3 SOUTH - Stage 8 - 14 Land Budget

Land Use	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13	Stage 14	Overall	
	Area	Area	Area	Area	Area	Area	Area	Area	%
	10.176 ha	**27.993 ha**	**16.967 ha**	**66.313 ha**	**16.056 ha**	**37.552 ha**	**144.019 ha**	**319.076 ha**	**100.0%**
Saleable Area									
Residential Allotments	—	14.554 ha	7.934 ha	6.274 ha	9.374 ha	21.607 ha	16.542 ha	76.285 ha	23.9%
Medium Density	—	—	—	—	—	—	2.863 ha	2.863 ha	0.9%
Local Centre	—	—	—	—	—	1.945 ha	—	1.945 ha	0.6%
District Centre	—	—	—	8.015 ha	—	—	—	8.015 ha	2.5%
Ambulance	—	—	—	0.600 ha	—	—	—	0.600 ha	0.2%
Child Care	—	0.700 ha	0.301 ha	—	—	—	—	1.001 ha	0.3%
Community Centre	—	—	—	—	—	0.551 ha	—	0.551 ha	0.2%
State Primary School	7.007 ha	—	—	—	—	—	—	7.007 ha	2.2%
Total Area of Allotments	**7.007 ha**	**15.254 ha**	**8.235 ha**	**14.889 ha**	**9.374 ha**	**24.103 ha**	**19.405 ha**	**98.267 ha**	30.8%
Road									
North South Arterial Dedication (incl. batters)	0.266 ha	—	3.079 ha	9.562 ha	—	—	0.132 ha	13.039 ha	4.1%
Trunk Connector 2 Lanes (23.7m)	2.195 ha	2.498 ha	—	0.144 ha	0.028 ha	0.327 ha	4.135 ha	9.327 ha	2.9%
Neighbourhood Connector (20.2m)	0.708 ha	1.748 ha	0.598 ha	0.689 ha	1.753 ha	1.016 ha	0.687 ha	7.199 ha	2.3%
Neighbourhood Access Street (16.5m)	—	5.229 ha	3.513 ha	3.143 ha	3.133 ha	4.372 ha	6.095 ha	25.485 ha	8.0%
Laneway (6.5m)	—	0.380 ha	0.075 ha	—	—	—	0.082 ha	0.537 ha	0.2%
Pedestrian Linkages	—	0.365 ha	0.132 ha	0.088 ha	0.255 ha	0.129 ha	0.642 ha	1.611 ha	0.5%
Total Area of New Road	**3.169 ha**	**10.220 ha**	**7.397 ha**	**13.626 ha**	**5.169 ha**	**5.844 ha**	**11.773 ha**	**57.198 ha**	17.9%
Open Space									
Conservation Buffer	—	—	—	—	—	—	1.988 ha	1.988 ha	0.6%
Corridor Park / Conservation	—	1.564 ha	—	21.807 ha	—	6.350 ha	18.061 ha	47.782 ha	15.0%
Stormwater Management	—	—	0.555 ha	—	1.513 ha	—	—	2.068 ha	0.6%
Regional Sports	—	—	—	15.001 ha	—	—	—	15.001 ha	4.7%
District Sports	—	—	—	—	—	—	8.560 ha	8.560 ha	2.7%
Neighbourhood Recreation Park	—	0.580 ha	0.539 ha	0.815 ha	—	0.502 ha	1.905 ha	4.341 ha	1.4%
Local Recreation Park	—	0.103 ha	—	0.175 ha	—	0.753 ha	0.293 ha	1.324 ha	0.4%
Local Linear Recreation Park	—	0.272 ha	0.241 ha	—	—	—	—	0.513 ha	0.2%
Total Open Space	**—**	**2.519 ha**	**1.335 ha**	**37.798 ha**	**1.513 ha**	**7.605 ha**	**30.807 ha**	**81.577 ha**	25.6%
Balance Allotments									
Balance Allotment	—	—	—	—	—	—	82.034 ha	82.034 ha	25.7%
Total Balance Allotments	**—**	**—**	**—**	**—**	**—**	**—**	**82.034 ha**	**82.034 ha**	25.7%

PLAN REF: 110056 – 640
Rev No: A
DATE: 30 AUGUST 2024
CLIENT: PEET
DRAWN BY: JC / MM
CHECKED BY: MD

Not to Scale @ A3

FLAGSTONE CA3 SOUTH

STAGES 8 - 14
OVERALL PLAN OF SUBDIVISION STATISTICS

URBAN DESIGN
Level 8
31 Duncan Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3539 9500
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Appendix 4 Flagstone Context Area 3 Landscape Masterplan

FLAGSTONE
CONTEXT AREA 3

LANDSCAPE MASTERPLAN

Prepared for

PEET

Flagstone

02 SEPTEMBER 2024

rps MAKING COMPLEX EASY

A TETRA TECH COMPANY

BORROL LOOKOUT, YARRABILBA

We acknowledge the First Nations people as the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture where we live and work.

We pay our respects to Elders past, present and emerging.

CONTENTS

REVISION	[A]	27/08/2024	JB	AG
	[B]	02/09/2024	JB	JB
DATE			PREPARED BY	APPROVED BY

PEET rps Flagstone

Prepared for:
PEET Limited

Site Location:
Flagstone CA3 Sth

Prepared by:
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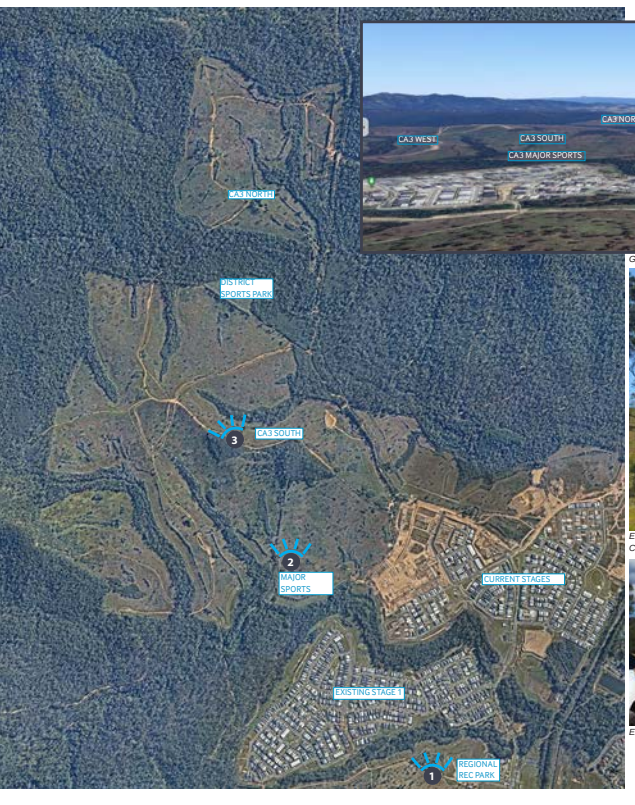
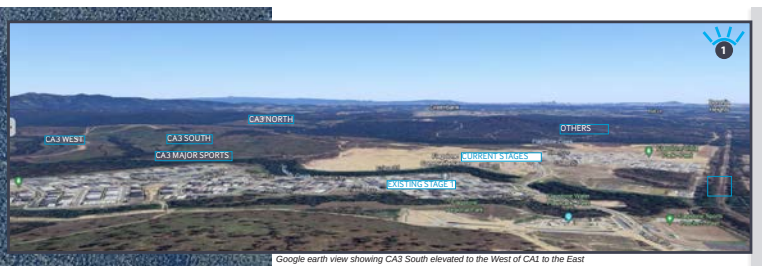




Google earth view showing CA3 South elevated to the West of CA1 to the East

Existing view north from Stage 11 Major Sports Park to existing vegetated hill conained in Stage 13 Corridor/ Conservation Park

Existing view North-West from Stage 13 ridgeline to surrounding hills

General Slope Analysis

The Slope Analysis demonstrates the existing constraints for the developable areas of Context Area 3 (CA3) South when compared with the adjacent Context Area 1 (CA1) and surrounding residential area. CA3 has significantly steeper slopes, areas with valuable existing vegetation and waterway corridors. The approach is to retain and incorporate these natural site features with the Open Space outcomes with recreation options to residents and visitors.

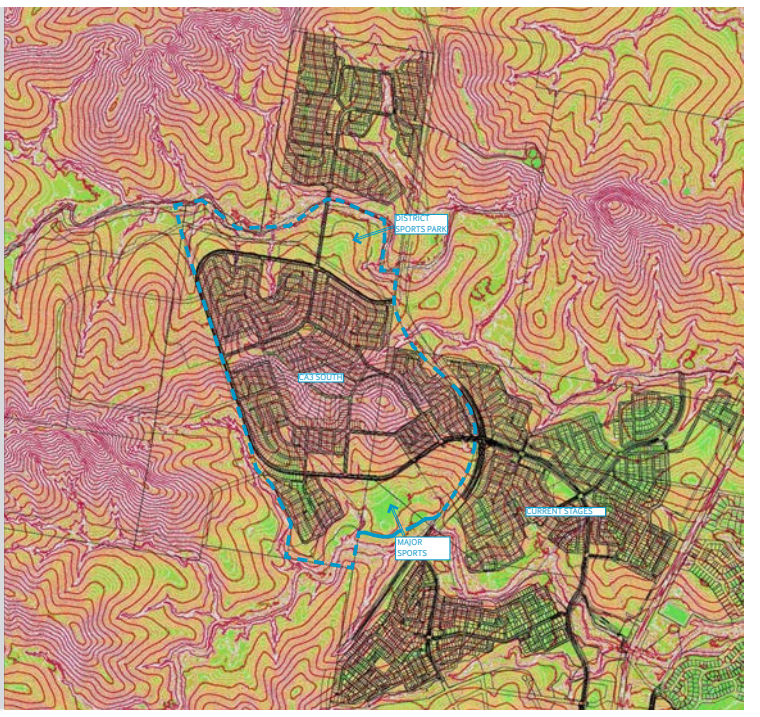
Recreation Parks

The Parks located at the centre of the development have the most slope to manage meeting exisiting ground to the road levels. These parks link to the hilltop which contains native bushland providing passive recreation trails, habitat and views to the surrounding hills. This connects to the character of the open spaces and gives opportunity for alternative approaches to embellishments in the Recreation Park outcomes, taking advantage of the topography and views with a light touch feel so shade providing trees can be retained. This area has potential to be connected with the future school, Lot 30015, as outdoor learning space.

The Neighbourhood Recreation Parks in the North and South of CA3, specifically Stage 14 Neighbourhood Recreation Park are intentionally oversized and located with less sloped areas which can be filled to accomodate the embellishments that require larger flat areas; including a double sized kick a bout area, multiple picnic shelter locations and a double play area for a range of age groups.

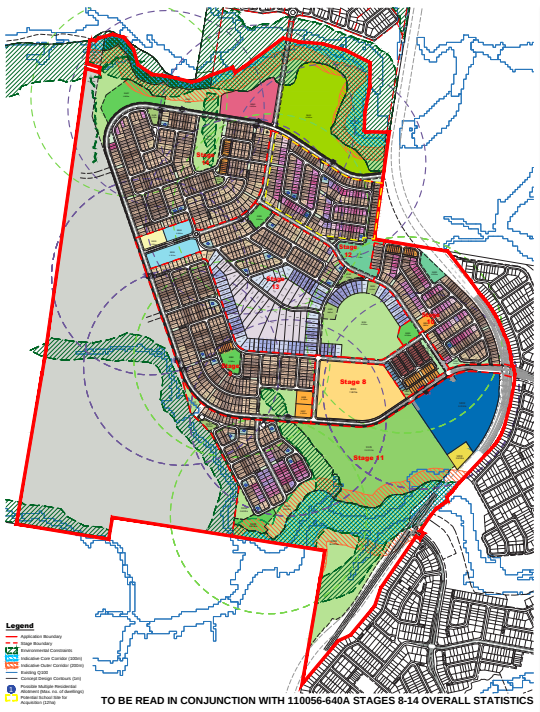
Sports Parks

The Sports Parks have been strategically located in the the flattest areas of the development area, adjacent creek corridors with existing vegetation providing buffers on 2 sides. These locations provide adequate amenity for events and regular users. Even with these strategic locations, there are still significant level changes of >10m across the sites. The approach for managing the level change to achieve compliant crowned sports fields with accessible viewing areas is a mix of batters and highest proposed walls facing the creek corridor and low walls within the parks doubling up as spectator seating.
Refer for more detail on Sports Field Layouts and associated embelishments on pages 16-19.



SITE


MASTERPLAN



TO BE READ IN CONJUNCTION WITH 110056-640A STAGES 8-14 OVERALL STATISTICS

PLAN REF: 110056 – 639
Rev No: A
DATE: 30 AUGUST 2024
CLIENT: PEET
DRAWN BY: JC / MM
CHECKED BY: MO

FLAGSTONE CA3 SOUTH PEET
STAGES 8 - 14
OVERALL PLAN OF SUBDIVISION

URBAN DESIGN
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A TETRA TECH COMPANY

ROL PLAN

LEGEND

1. District Sports Park
2. Regional Sports Park
3. Corridor Park / Conservation with existing vegetation to be retained & cleared areas to be revegetated
4. Neighbourhood Recreation Park
5. Linear Park
6. Sandy Creek Corridor
7. Flagstone Creek Corridor
8. Bio-retention Basins
9. Local Recreational Park
10. District Centre
11. Local Centre
12. Medium Density
13. School
14. Child Care

SITE

LEGEND

Neighbourhood Recreation Parks (NRP)

1 9D-2
2 10E
3 11G
4 13L
5 14Q-1

Corridor Park / Conservation

1 9C-2
2 11F
3 11H
4 11K
5 13M
6 14G
7 14Q-2
8 14S-4
9 St 11 Lot 91102

Local Recreation Parks (LRP)

1 9N
2 11E
3 13C-A
4 13C-B
5 13C-C
6 14C
7 14J

Bio-retention Basins

1 10H
2 12A
3 11F - within corridor park
4 11H - within corridor park

Linear Park (LP)

1 9M
2 10C

Conservation Buffer (CD)

1 14Q-3

Sports Parks

1 District Sports Park (DSP)
2 Regional Sports park (RSP)

PARKS MASTERPLAN

COMMUNITY GREEN SPACE CONTRIBUTION SUMMARY TABLE

	INFRASTRUCTURE MASTER PLAN (2018)	STAGE 1	STAGE 2 SCHOOL ROL	STAGE 2-5	CONTEXT AREA 3 Sth	CONTEXT AREA 3 Nth	TOTAL (to date)
Potential Residential Dwellings (Av. 15-16 dwellings/ha)	13,000	812	N/A	1,404	1,674	786	4,637 dwellings
Estimated Population	31,200ppl (2.4pp/dwell)	1,786 ppl (2.2 pp/ dwell)	N/A	3,370 ppl (2.4 pp/ dwell)	4,017 ppl (2.4 pp/ dwell)	1,887ppl (2.4 pp/ dwell)	10,967 ppl
Corridor Park	342.53 ha	13.498 ha	4.672 ha	36.259 ha	47.782ha	25.384 ha	120.327 ha
Local Recreation Park	39 ha (based on context area)	1.974ha (1.105ha/ 1000ppl)	N/A	5.757 ha (1.70ha/ 1000 ppl)	6.178ha (1.53ha/ 1000ppl	6.490 ha (3.4ha/ 1000 pp)	20.399ha
Conservation Area	84.20 ha		N/A	19.717 ha	1.988 ha	7.589 ha	29.294 ha
Sports Parks	32.15ha	N/A	N/A	N/A	24.96 ha	N/A	N/A
District Recreation Park	15.8ha		N/A	5.648 ha (1)			5.648 ha
Regional Recreation Park	10ha (1)	12.080 ha	N/A				12.080ha

LOCAL RECREATION PARK PROVISION COMPLIANCE SUMMARY

Land Use	Community Green Space - IMP	CA3 South – Masterplan Green Space		
Green Space		No. of Parks	Total Area of Parks	Land (ha/ppl)
Neighbourhood Recreation Park	0.5 – 1.9ha	5	4.341 ha	1.08 ha / 1000
Corridor Park/ Conservation	1.5 - 20ha	4	43.719 ha	10.88 ha/1000
Local Recreation Park/linear	0.0 - 0.8 ha	6	1.838 ha	0.45 ha / 1000
TOTAL		15	49.898 ha	12.421 ha / 1000

CONTEXT AREA 3 SOUTH - GREEN SPACE PROVISION

GREEN SPACE		MIN AREA (IMP)	
	Neighbourhood Recreation Parks	5,000sqm	9D-2 = 0.580 ha 10E = 0.539 ha 11G = 0.815 ha 13L = 0.502 ha 14Q-1 = 1.905 ha
	Corridor Park/ Conservation	NA	9C-2 = 1.564 ha 11, 11F, 11H, 11K= 21.807 ha 13M = 6.350 ha 14G, 14Q-2, 14S-4 = 13.998ha
	Local Recreation Park	500sqm	9N = 0.103 ha 11E = 0.175 ha 13C-A, B, C = 0.753 ha 14C, J = 0.293 ha
	Stormwater Treatment Area	NA	10H = 0.555 ha 12A = 1.513 ha
	Local Linear Recreation Park	NA	9M = 0.272 ha 10C = 0.241 ha
	Conservation buffer	NA	14Q = 1.988 ha
	Sports Parks	NA	12S-2 DSP = 8.510 ha 11I RSP = 16.450 ha
		TOTAL OPEN SPACE	81.577 ha

OVERALL


PARK PLANS

LEGEND

- Proposed ROL area - 15.01 ha
  - Area of sports land use - 6.48ha
  - Percentage of sports land use - 43%
1. Sealed Carparking:
   - Lighting delivered to LCC DSS /AS 1179
   - Meets 175 min. requirement, incl. 6 PWD
   - Bike parking incorporated
2. Cricket Field
   - Full size at 150m dia. - crowned
   - Sub-surface irrigation
   - Turf wicket block
3. Future expanison area/Training Lawn
4. 2 Senior Rectangular Fields
5. 1 Junior field
6. Cricket Nets x4
   - To a North/south alignment
   - With 300 lux lighting

7a Future Clubhouse (by others)

7b Toilet Block to LCC DSS requirements

8. Shed x2
   - 9x6m triple door or approved equivalent
9. Water Tank / irrigation compound
10. Bio-retention
    - Within carpark layout

Indicative New Trees

Pedestrian Pathway

L Field lighting towers

SH Spectators Shelters

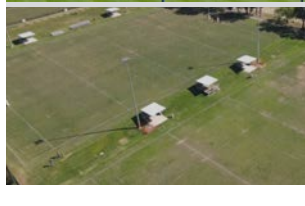
N 15m High Net

Retaining Walls

REGIONAL SPORTS PARK (POS035)

Layout as coordinated with Logan City Council to comply with their Sport Park Strategy for the Greater Flagstone Development Area.

Embelishment	EDQ PDA Guideline n.12 required	LCC Planning Scheme	Compliance
Playing fields	Further Issues request: 75m radius cricket oval Cricket nets AFL oval One junior and two senior rectangular fields	At lease 3 full sized multi-use	Complies - fields provided as confirmed with LCC with change from an AFL oval to a 2nd 75miR cricket oval
Internal access road	Yes	Yes	Complies - internal road with bus turnaround
Parking - bicycles - cars	 Yes Yes	 Bike parking to be collocated with carparking 175	Complies
Lighting	Yes	Yes - fields & courts	Complies
Toilets	Yes		Complies - includes toilet
Paths	Yes - walking & cycling	Combination of pedestrian and shared use	Complies - paths connect from parking to clubhouses
Shade Structures	Yes, min. 1/3 of one boundary	Tree canopy 30% shade to specator seating at maturity	Complies
Table and seating - uncovered	Yes	Seating: 20 units & sufficient spectator seating	Complies
Table and Seating - covered	Yes	3x setting for small gathering 1 x seeting for larger gathering	Complies- colocated with clubhouses
Informal active recreation spaces	Yes		Complies
Maintenance, serivce & emergency access		Yes	Complies
Drink fountain & hosecock Fencing/bollards/ lockrails Bins		6 units	Complies- embellishment locations to be nominated in Design Detail phase. Lockrail to internal road entries
Fitness equipment		6 items	Equipment to be colocated with clubhouses
CPTED		Clear & visible lines of sight for passive surveillance from formalised entries and crossings	Complies - clear views in from trunk collector road
Flood immunity	All formal playing surfaces above the 20yr ARI flood level. Clubhouses/ toilet/ amenities above 100yr ARI	100% above 10yr ARI 50% above 50yr ARI 10% above 100yr ARI	Complies



DISTRICT SPORTS PARK (POS030)

Layout as coordinated with Logan City Council to comply with their Sport Park Strategy for the Greater Flagstone Development Area.

Embelishment	EDQ PDA Guideline n.12 required	LCC Planning Scheme	Compliant
Playing fields	Yes	At lease 2 full sized playing fields with full overflow areas and associated spectator areas	Complies
Internal access road	Yes	Yes	Complies
Parking - bicycles - cars	 Yes Yes	 173 - 180 advised in FI Letter	Complies
Lighting	Yes	Yes - fields & courts	Complies
Toilets	Yes		Complies
Paths	Yes - walking & cycling	Combination of pedestrian and shared use	Complies
Shade Structures	Yes, min. 1/3 of one boundary	Tree canopy 30% shade to spectator seating at maturity	Complies
Table and seating - uncovered	Yes	Seating: 20 units & sufficient spectator seating	Complies seating and tables with clubhouse
Table and Seating - covered	Yes	3x setting for small gathering 1 x setting for larger gathering	Complies- seating and tables with spectator shelters
Informal active recreation spaces	Yes		Complies
Maintenance, service & emergency access		Yes	Complies
Drink fountain & hosecock Fencing/bollards/ lockrails Bins		6 units	Complies- locations to be finalised with Detail Design. Lockrails to internal road entry
Courts	Yes	Yes	Complies- 5x multiuse courts
Flood immunity	All formal playing surfaces above the 20yr ARI flood level. Clubhouses/ toilet/ amenities abpve 100yr ARI	100 above 10yr ARI 50% above 50yr ARI 10% above 100yr ARI	Complies

STAGE 13 REC PARKS

Embelishment	EDQ PDA Guideline n.12 required	LCC Planning Scheme	STAGE 10E - Neighbourhood Rec. Park	STAGE 13C-A (North) - Local Rec. Park	STAGE 13C-B (West) - Local Rec. Park	STAHE 13C-C (North east) - Local Rec. Park	STAGE 13M - Corridor Park
Bicycles Parking Car Parking	Yes No	Kerbside (car parking)	Kerbside carparking + Bicycle racks	Kerbside parking	Kerbside parking	Kerbside parking	Kerbside parking
Lighting	Yes - Neighbourhood Rec Park	Site specific. not req. for kickabout	Compliant - lighting to paths	Not required	Not required	Not required	Not required
Paths	Yes - walking & cycling	Combination of pedestrian and shared use	Combinated pedestrian and shared paths	Not required	Hiking trails w/ stairs proposed	Hiking trails w/ stairs proposed	Hiking trail and lookout proposed
Shade Structures	Yes - 50% for paths 50% for formal seating	Tree canopy 30% shade at maturity	Complies - retention of existing vegetation	Not required	Tree canopy providing shade to paths	Tree canopy providing shade to paths	Not required
Table and seating - uncovered	Yes	Seating: 3x units	Complies - informal seating to play for supervision	Not required	Not required	Not required	Not required
Table and Seating - covered	Yes	2x setting for small gathering	1x setting is within existing vegetation - tree canopy will provide adaquate shade.	Not required	Not required	Not required	Not required
BBQs- IMP Standard embellishement			1x unit colocated with table setting	Not required	Not required	Not required	Not required
Play areas/facilities	Yes	Min. 300 sqm softfall footprint & play equipment	Complies - approx. 400sqm softfall. Play focused to road frontage for passive surveillance	Not required	Not required	Not required	Not required
Informal active recreation spaces	Yes - At least 3, including at least 1 suitable for kick a bout & other activities, min 30x50m	Kick a bout: 1-2 40% of park, min. 0.4ha 30x50m min. excl batters at 1:40 max - 1:6 max for turf 1:3 max. for planting	1:4 -1:7 Sloped site not suitable for a kick-a-about space. Bouldering wall & double kickabout in Stg 14 Neighbourbood Rec Park proposed as alternative solution.	turf lawn proposed	Not required	Not required	Lookout proposed at high point, exact location to be confirmed
Half court, rebound wall or similar	Yes	1 x Half basketball court	Sloped site not suitable for half court. Bouldering wall proposed as alternative solution.	Not required	Not required	Not required	Not required
Interpretive signage		Yes	Proposed trail map	Not required	Proposed way-finding signage	Proposed way-finding signage	Proposed way-finding signage
Maintenance, service & emergency access	Yes	Yes	Complies	Complies	Complies	Complies	Complies
Subsurface drainage		Kick about (if below 10yr ARI)	Subsurface drainage to play areas	Not required	Not required	Not required	Not required
[1] Drink fountain & hosecock [2] Fencing/bollards/ lockrails [3] Bins		1x unit Yes, to road 2 x co-located with tables	[1] 1x unit [2] Bollards to road frontage [3] 2x co-located with table and play seating	Not required	Not required	Not required	Not required
50% Road frontage			Complies	Not required	Not required	Not required	Not required
Fitness equipment		3 items	Complies - suitable for 5 items	Not required	Not required	Not required	Not required
CPTED		Clear & visible lines of sight for passive surveilance from formalised entries and crossings	Complies - majority of activities close to road and with views from road and adjacent lots				

LEGEND

1. Passive recreation turf lawn
2. Small picnic shelter.
3. Accessible paths connecting park feature and linking to hiking trails
4. Retained vegetation for shade to the playground & passive recreation area
5. Revegetated 1:4 batters to meet with natural ground
6. 2.9m bouldering wall with softfall and embankment play
7. 5-11 year play
8. 2-5 year play
9. Corridor Park path network
10. Lookout
11. Fitness equipment
12. Boulder retaining
13. Low shrubs and shade trees to allow views in while providing safety to play area from the road
14. Stairs up 1:4 batters for access into corridor park and fitness training

STAGE 14 REC PARKS

Embelishment	EDQ PDA Guideline n.12 required	LCC Planning Scheme	STAGE 14G - Local Corridor Park	STAGE 14Q-1 - Neighbourhood Rec. Park	STAGE 14Q-2 - Local Corridor Park
Bicycles Parking Car Parking	Yes No	Kerbside parking	Kerbside carparking available	Kerbside carparking bicycle racks collocated with shelters	Kerbside carparking available
Lighting	Yes	Site specific. not req. for kickabout	Not required	Complies - lighting to paths	Not required
Paths	Yes - walking & cycling	2m Shared use paths	2m Shared use paths	2m Shared use paths	2m Shared use paths
Shade Structures	Yes - 50% for paths 50% for formal seating	Tree canopy 30% shade at maturity	Not required - however, tree canopy providing shade to paths	Complies - Shelter/s over table seating - shading from retention of existing vegetation	Tree canopy provides adaquate shade to pathways
Table and seating - uncovered	Yes	Seating: 3x units	Not required	Yes - 4x units provided to offset Stage 10E park	Not required
Table and Seating - covered	Yes	2x setting for small gathering	Not required	3x centrally located covered settings	Not required
Play areas/facilities	Yes	Min. 300 sqm softfall footprint & play equipment	Not required	Yes - approx. 700sqm softfall.	Not required
Informal active recreation spaces	Yes - At least 3, including at least 1 suitable for kick a bout & other activities, min 30x50m	Kick a bout: 1-2 40% of park, min. 30x50m min. excl batters at 1:40 max - 1:6 max for turf 1:3 max. for planting	Not required	Yes - (1) Primary 2500sqm kick about at 1:40 - (2) secondary 1150sqm passive rec. lawn	Not required
Half court, rebound wall or similar	Yes	1 x Half basketball court	Not required	Yes - Half Basketball Court provided - North facing	Not required
Interpretive signage		Yes- where required	NA	Proposed creek information	NA
Maintenance, service & emergency access	Yes	Yes	Complies	Complies	Complies
Subsurface drainage		Kick about (if below 10yr ARI)	Not required	Not required	Not required
[1] Drink fountain & hosecock [2] Fencing/bollards/lockrails [3] Bins		1x unit Yes, to road 2 x co-located with tables	[2] Bollards to road frontage	[1] 1x unit [2] Bollards to road frontage [3] 2x co-located with tables	[2] Bollards to road frontage
50% Road frontage	Yes	Yes	Complies	Complies	Complies
Fitness equipment		3 items	Not required	Complies - proposed 5 items	Not required
CPTED		Clear & visible lines of sight for passive surveilance from formalised entries and crossings	Complies	Complies - majority of activities close to road and with views from road and adjacent lots	Complies
Flood immunity	Max 30% below the 5yr ARI Buildings above 100yr ARI	Activity area >100yr ARI Remainder >20yr ARI	Not required	Not required	Not required

LEGEND

1. 2-5 year play
2. 5-11 year play
3. Kick-a-bout space - approx. 2500sqm at nominally 1:40 grade
4. Passive recreational lawn - approx. 1150sqm
5. Dog park - 800sqm w/ 2x bench seating
6. Picnic table setting x3 w/ drinking fountain & bike racks
7. Picnic table setting x1
8. New planting - for screening, passive amenity and road safety
9. Shared accessable footpaths with maintenance access
10. Half basketball court with fitness equipment
11. Reveg to batters
12. Nature trail
13. Retained native vegetation to waterway corridor
14. Pedestrian crossing with pattern road marking

STAGE 9 REC PARKS

Embelishment	EDQ PDA Guideline n.12 required	LCC Planning Scheme	STAGE 9C-2 - Corridor park	STAGE 9D-2 - Neighbourhood Rec. Park	STAGE 11E - Local Rec. Park
Bicycles Parking Car Parking	Yes - NRP No	Kerbside carparking	Kerbside carparking	Bicycle racks x3 Kerbside carparking	Kerbside carparking available
Lighting	Yes	Site specific. not req. for kickabout	Not required	Complies - lighting to paths	Not required
Paths	Yes - walking & cycling	Combination of pedestian and shared use	Pedestrian paths and walking tracks designed for passive surveylance	Shared use paths	Pedestrian paths and walking tracks designed for passive surveilance
Shade Structures	Yes - 50% for paths 50% for formal seating	Tree canopy 30% shade at maturity	Not required - however, tree canopy provides adaquate shade to pathways	Complies - Shelter/s over table seating - shading from retention of existing vegetation	Tree canopy provides adaquate shade to park
Table and seating - uncovered	Yes	Seating: 3x units	Not required	Complies - 3x seats provided	Not required
Table and Seating - covered	Yes	2x setting for small gathering	Not required	Complies - 2x tables under shelter centralise in park	Not required
Play areas/facilities	Yes	Min. 300 sqm softfall footprint & play equipment	Not required	Yes - approx 350 sqm softfall	Not required
Informal active recreation spaces	Yes - At least 3, including at least 1 suitable for kick a bout & other activities, min 30x50m	Kick a bout: 1-2 40% of park, min. 0.4ha 30x50m min. excl batters at 1:40 max - 1:6 max for turf 1:3 max. for planting	Not required	Complies	Not required
Half court, rebound wall or similar	Yes	1 x Half basketball court	Not required	Complies, multiuse half court	Not required
Interpretive signage		Where relivant	Not required	Not required	Not required
Maintenance, serivce & emergency access	Yes	Yes	Complies	Complies	Complies
Subsurface drainage		Kick about (if below 10yr ARI)	Not required	Not required	Not required
[1] Drink fountain & hosecock [2] Fencing/bollards/lockrails [3] Bins		1x unit Yes, to road 2 x co-located with tables	Not required	[1] 1x unit [2] Bollards to road frontage [3] 2x co-located with tables	Not required
50% Road frontage			Complies	Complies	Complies
Fitness equipment		3 items	Not required	Complies - proposed 3 items	Not required
CPTED		Clear & visible lines of sight for passive surveillance from formalised entries and crossings	Complies	Complies - majority of activities close to road and with views from road and adjacent lots	Complies
Flood immunity	Max 30% below the 5yr ARI Buildings above 100yr ARI	Activity area >100yr ARI Remainder >20yr ARI	Not required	Complies	Not required

LEGEND

1. Kick-a-bout space - 30 x 50m at 1:40 grade
2. Picnic table settings with BBQ
3. Retained vegetation
4. New planting allowing views into park
5. Play space with 300sqm softfall area
6. Multi use half court with calisthetics fitness equipment
7. Batter planting - low fire fuel
8. Turf fire break
9. Shade trees to childcare boundary
10. Nature trail
11. Shared path connection

1. Key views into park
2. Shared use connection through park
3. Disperse planting to maintain open views to park
4. Playground with 300sqm softfall
5. Multiuse court
6. Shelter with 2x table settings
7. Kick a bout 65m x 20-30m 1:35 slope
8. 600mm low wall to achieve compliant grades and retain existing trees
9. Buffer planting to basin interface
10. Batter reveg planting to blend with surrounding reveg and existing vegetation in waterway corridor

STAGE 11G NEIGHBOURHOOD REC PARK

Embelishment	EDQ PDA Guideline n.12 required	LCC Planning Scheme	STAGE 9C-2 - Corridor park	STAGE 9D-2 - Neighbourhood Rec. Park	STAGE 11E - Local Rec. Park
Bicycles Parking Car Parking	Yes - NRP No	 Kerbside carparking	 Kerbside carparking	Bicycle racks x3 Kerbside carparking	 Kerbside carparking available
Lighting	Yes	Site specific. not req. for kickabout	Not required	Complies - lighting to paths	Not required
Paths	Yes - walking & cycling	Combination of pedestian and shared use	Pedestrian paths and walking tracks designed for passive surveylance	2m Shared use paths	Pedestrian paths and walking tracks designed for passive surveilance
Shade Structures	Yes - 50% for paths 50% for formal seating	Tree canopy 30% shade at maturity	Not required - however, tree canopy provides adaquate shade to pathways	Complies - Shelter/s over table seating - shading from retention of existing vegetation	Tree canopy provides adaquate shade to park
Table and seating - uncovered	Yes	Seating: 3x units	Not required	Complies - 3x seats provided	Not required
Table and Seating - covered	Yes	2x setting for small gathering	Not required	Complies - 2x tables under shelter centralise in park	Not required
Play areas/facilities	Yes	Min. 300 sqm softfall footprint & play equipment	Not required	Yes - approx 350 sqm softfall	Not required
Informal active recreation spaces	Yes - At least 3, including at least 1 suitable for kick a bout & other activities, min 30x50m	Kick a bout: 1-2 40% of park, min. 0.4ha 30x50m min. excl batters at 1:40 max - 1:6 max for turf 1:3 max. for planting	Not required	Complies	Not required
Half court, rebound wall or similar	Yes	1 x Half basketball court	Not required	Complies - Multiuse half court proposed	Not required
Interpretive signage		Yes	Not required	Complies - biobasin information signage suggested	Not required
Maintenance, serivce & emergency access	Yes	Yes	Complies	Complies	Complies
Subsurface drainage		Kick about (if below 10yr ARI)	Not required	Not required	Not required
[1] Drink fountain & hosecock [2] Fencing/bollards/lockrails [3] Bins		1x unit Yes, to road 2 x co-located with tables	Not required	[1] 1x unit [2] Bollards to road frontage [3] 2x co-located with tables	Not required
50% Road frontage			Not required	Complies	Not required
Fitness equipment		3 items	Not required	Complies - 3 x calisthetics fitness equipment proposed	Not required
CPTED		Clear & visible lines of sight for passive surveillance from formalised entries and crossings	Complies	Complies - majority of activities close to road and with views from road and adjacent lots	Complies
Flood immunity	Max 30% below the 5yr ARI Buildings above 100yr ARI	Activity area >100yr ARI Remainder >20yr ARI	Not required	Complies	Not required

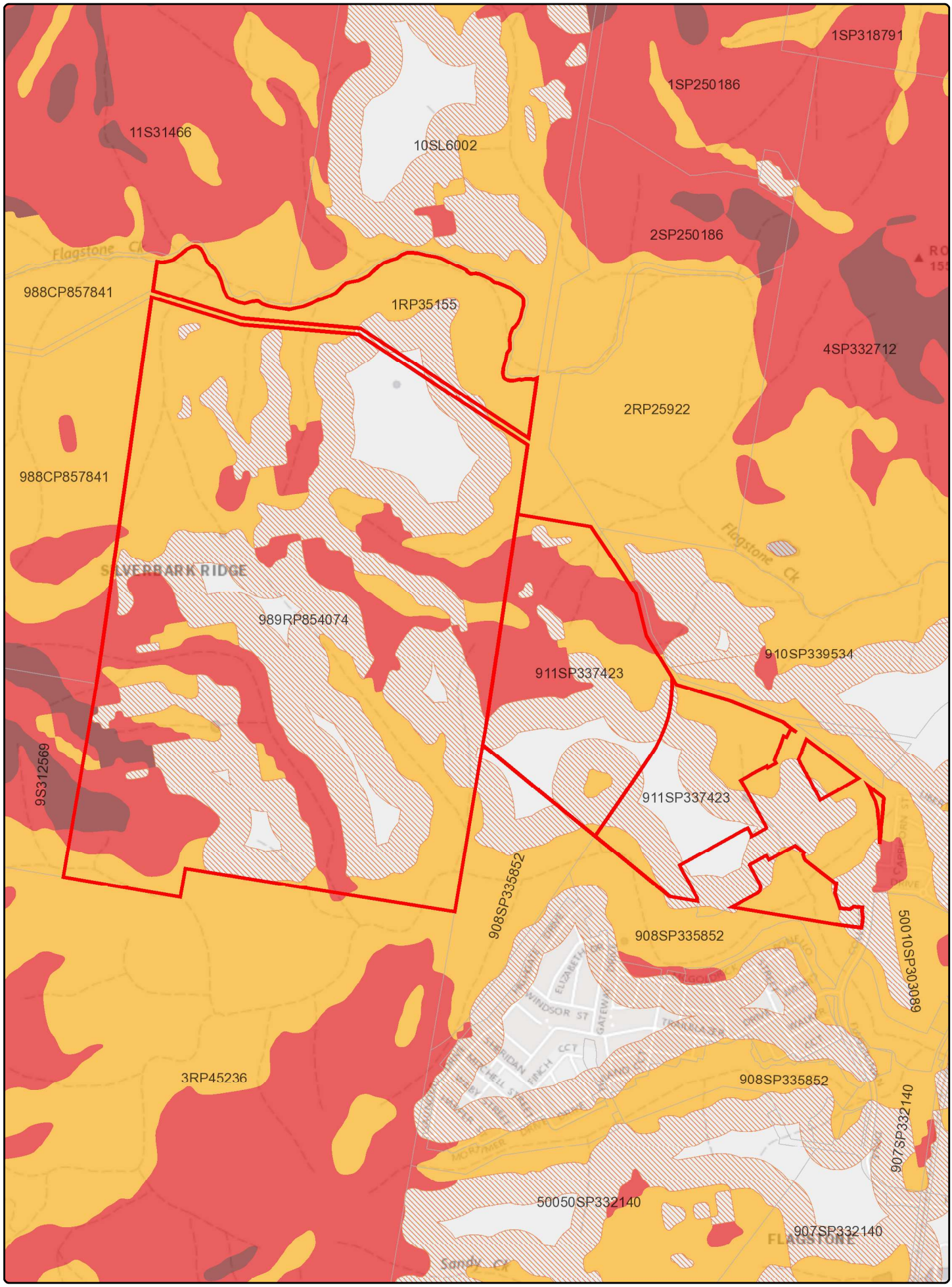
Embelishment	EDQ PDA Guideline n.12 required	LCC Planning Scheme	STAGE 13L - Neighbourhood Recreation Park	STAGE 14C - Local Rec. Park
Bicycles Parking Car Parking	Yes - NRP No	Kerbside carparking	Bicycle racks x3 Kerbside carparking	Kerbside carparking available
Lighting	Yes	Site specific. not req. for kickabout	Complies - lighting to paths	Not required
Paths	Yes - walking & cycling	Combination of pedestian and shared use	2m Shared use paths	Streetscape paths
Shade Structures	Yes - 50% for paths 50% for formal seating	Tree canopy 30% shade at maturity	Complies - Shelter over table seating plus trees planted	Tree canopy provides shade to park
Table and seating - uncovered	Yes	Seating: 3x units	Complies - 3x seats provided	Not required
Table and Seating - covered	Yes	2x setting for small gathering	Complies - 2x tables under centrally located shelter	Not required
Play areas/facilities	Yes	Min. 300 sqm softfall footprint & play equipment	Complies - approx 350 sqm softfall	Not required
Informal active recreation spaces	Yes - At least 3, including at least 1 suitable for kick a bout & other activities, min 30x50m	Kick a bout: 1-2 40% of park, min. 0.4ha 30x50m min. excl batters at 1:40 max - 1:6 max for turf 1:3 max. for planting	Complies -low walls to achieve compliant Kick a bout spaces	Not required
Half court, rebound wall or similar	Yes	1 x Half basketball court	Complies - Multiuse court proposed	Not required
Interpretive signage		Yes	Play and court safety information proposed	Not required
Maintenance, serivce & emergency access	Yes	Yes	Complies	Complies
Subsurface drainage		Kick about (if below 10yr ARI)	Not required	Not required
[1] Drink fountain & hosecock [2] Fencing/bollards/lockrails [3] Bins		1x unit Yes, to road 2 x co-located with tables	[1] 1x unit [2] Bollards to road frontage [3] 2x co-located with tables and play	Not required
50% Road frontage	Yes	Yes	Complies	Complies
Fitness equipment		3 items	Complies - 3 x calisthetics fitness equipment proposed	Not required
CPTED		Clear & visible lines of sight for passive surveillance from formalised entries and crossings	Complies - majority of activities close to road and with views from road and adjacent lots	Complies
Flood immunity	Max 30% below the 5yr ARI Buildings above 100yr ARI	Activity area >100yr ARI Remainder >20yr ARI	Complies	Not required

LEGEND

1. Key views into park
2. Shared use connection through park
3. Disperse planting to maintain open views to park
4. Passive open spaces
5. Playground with 300sqm softfall
6. Multiuse court
7. Shelter with 2x table settings
8. Kick a bout 50 x 30m 1:35 slope
9. 600mm low wall to achieve compliant grades and casual seating provision
10. Turf, planting and trees to local recretation park

STAGE 13 REC PARKS

Appendix 5 Bushfire prone area map



State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Date: 09/02/2024

Queensland Government

0 290 580 870 1,160

Metres

Disclaimer:
This map has been prepared with due care based on the best available information at the time of publication. However, the State of Queensland (acting through the department) makes no representations, either express or implied, that the map is free from errors, inconsistencies or omissions. Reliance on information contained in this map is the sole responsibility of the user. The State disclaims responsibility for any loss, damage or inconvenience caused as a result of reliance on information or data contained in this map.

Legend

Drawn Polygon Layer

Override 1

Cadastre (25k)

Cadastre (25k)

Bushfire prone area

Very High Potential Bushfire Intensity

High Potential Bushfire Intensity

Medium Potential Bushfire Intensity

Potential Impact Buffer

Date: 09/02/2024

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Queensland Government

Queensland Government

Appendix 6 Radiant heat exposure assessment

Bushfire attack scenario A

- Forest fire danger index - 56
- Vegetation - VHC 28.1 *Open forests in coastal locations with species such as she-oak or swamp box*
- Understorey fuel load – 24.9 tonnes/hectare (**t/ha**)
- Total fuel load – 26.9 t/ha
- Effective slope – 5° slope (down slopes 0-5°)
- Site slope – 0° slope (constructed landform)
- Flame width – 100 metres (**m**)
- Flame temperature – 1,090 Kelvin (**K**)

Note Inputs used for the radiant heat exposure assessment are in accordance with Section 7.3 of *Bushfire Resilient Communities Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire 2019* (**Bushfire resilient communities**).

Calculated April 12, 2024, 3:25 pm (MDc v.4.9)

J24020

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	56	Rate of spread	2.36 km/h
Vegetation classification	Forest	Flame length	18.58 m
Understorey fuel load	24.9 t/ha	Flame angle	52 °, 62 °, 69 °, 73 °, 75 ° & 81 °
Total fuel load	26.9 t/ha	Elevation of receiver	7.32 m, 8.199999999999999 m, 8.67 m, 8.880000000000001 m, 8.970000000000001 m & 9.17 m
Vegetation height	n/a	Fire intensity	32,836 kW/m
Effective slope	5 °	Transmissivity	0.865, 0.843, 0.8149999999999999, 0.789, 0.776 & 0.718
Site slope	0 °	Viewfactor	0.6051, 0.4514, 0.3056, 0.2082, 0.1688 & 0.0456
Flame width	100 m	Minimum distance to < 40 kW/m²	15.2 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	20.3 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	29 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	39.9 m
		Minimum distance to < 10 kW/m²	46.8 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Bushfire attack scenario B

- Forest fire danger index - 56
- Vegetation – *VHC 10.1 Spotted gum dominated open forests*
- Understorey fuel load – 19.3 t/ha
- Total fuel load – 20.8 t/ha
- Effective slope – 5° slope (down slopes 0-5°)
- Site slope – 0° slope
- Flame width – 100 m
- Flame temperature – 1,090 K

Note Inputs used for the radiant heat exposure assessment are in accordance with Section 7.3 of Bushfire resilient communities.

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Calculated April 12, 2024, 3:27 pm (MDc v.4.9)

J24020

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	56	Rate of spread	1.83 km/h
Vegetation classification	Forest	Flame length	14.39 m
Understorey fuel load	19.3 t/ha	Flame angle	53 °, 63 °, 71 °, 75 °, 77 ° & 82 °
Total fuel load	20.8 t/ha	Elevation of receiver	5.74 m, 6.41 m, 6.8 m, 6.95 m, 7.01 m & 7.12 m
Vegetation height	n/a	Fire intensity	19,680 kW/m
Effective slope	5 °	Transmissivity	0.872, 0.853, 0.828, 0.802, 0.789 & 0.727
Site slope	0 °	Viewfactor	0.5988, 0.4438, 0.3006, 0.2041, 0.1662 & 0.0451
Flame width	100 m	Minimum distance to < 40 kW/m²	11.9 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	16 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	23.3 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	32.8 m
		Minimum distance to < 10 kW/m²	38.8 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Bushfire attack scenario C

- Forest fire danger index - 56
- Vegetation – *VHC 10.1 Spotted gum dominated open forests*
- Understorey fuel load – 19.3 t/ha
- Total fuel load – 20.8 t/ha
- Effective slope – 0° slope (up slopes)
- Site slope – 0° slope
- Flame width – 100 m
- Flame temperature – 1,090 K

Note Inputs used for the radiant heat exposure assessment are in accordance with Section 7.3 of Bushfire resilient communities.

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Calculated April 12, 2024, 3:28 pm (MDc v.4.9)

J24020

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	56	Rate of spread	1.29 km/h
Vegetation classification	Forest	Flame length	10.92 m
Understorey fuel load	19.3 t/ha	Flame angle	53 °, 64 °, 72 °, 77 °, 78 ° & 84 °
Total fuel load	20.8 t/ha	Elevation of receiver	4.36 m, 4.91 m, 5.19 m, 5.32 m, 5.34 m & 5.43 m
Vegetation height	n/a	Fire intensity	13,937 kW/m
Effective slope	0 °	Transmissivity	0.879, 0.863, 0.841, 0.8169999999999999, 0.804 & 0.737
Site slope	0 °	Viewfactor	0.5931999999999999, 0.4389, 0.2959, 0.2007, 0.1631 & 0.0445
Flame width	100 m	Minimum distance to < 40 kW/m²	9.1 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	12.3 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	18.1 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	26.1 m
		Minimum distance to < 10 kW/m²	31.3 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Bushfire attack scenario D

- Forest fire danger index - 56
- Vegetation – *VHC 16.1 Eucalyptus dominated forest on drainage lines and alluvial plains*
- Understorey fuel load – 13.8 t/ha
- Total fuel load – 16t/ha
- Effective slope – 5° slope (down slopes 0-5°)
- Site slope – 0° slope
- Flame width – 100 m
- Flame temperature – 1,090 K

Note Inputs used for the radiant heat exposure assessment are in accordance with Section 7.3 of Bushfire resilient communities.

FLAMESOL
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Calculated April 12, 2024, 3:30 pm (MDc v.4.9)

J24020

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	56	Rate of spread	1.3 km/h
Vegetation classification	Forest	Flame length	10.43 m
Understorey fuel load	13.8 t/ha	Flame angle	54 °, 64 °, 72 °, 77 °, 79 ° & 84 °
Total fuel load	16 t/ha	Elevation of receiver	4.21 m, 4.68 m, 4.96 m, 5.08 m, 5.11 m & 5.18 m
Vegetation height	n/a	Fire intensity	10,824 kW/m
Effective slope	5 °	Transmissivity	0.88, 0.865, 0.844, 0.82, 0.806 & 0.739
Site slope	0 °	Viewfactor	0.5921999999999999, 0.4368, 0.296, 0.2, 0.1629 & 0.0444
Flame width	100 m	Minimum distance to < 40 kW/m²	8.699999999999999 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	11.8 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	17.3 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	25.1 m
		Minimum distance to < 10 kW/m²	30.1 m

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980
Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980
Elevation of receiver - Douglas & Tan, 2005
Flame angle - Douglas & Tan, 2005
Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Bushfire attack scenario E

- Forest fire danger index – 56
- Grassland fire danger index - 79
- Vegetation – *VHC 40.4 Continuous grass or tree cover*
- Understorey fuel load – 4.5 t/ha
- Total fuel load – 5 t/ha
- Effective slope – 5° slope (down slopes 0-5°)
- Site slope – 0° slope
- Flame width – 100 m
- Flame temperature – 1,090 K

Note Inputs used for the radiant heat exposure assessment are in accordance with Section 7.3 of Bushfire resilient communities.

FLAMESOL
FPA AUSTRALIA

Calculated April 12, 2024, 3:32 pm (MDc v.4.9)

J24020

Minimum Distance Calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Grassland Fire Danger Index	79	Rate of spread	14.5 km/h
Vegetation classification	Grassland	Flame length	7.29 m
Understorey fuel load	4.5 t/ha	Flame angle	54 °, 64 °, 73 °, 78 °, 80 ° & 85 °
Total fuel load	5 t/ha	Elevation of receiver	2.95 m, 3.27 m, 3.48 m, 3.56 m, 3.59 m & 3.63 m
Vegetation height	n/a	Fire intensity	37,461 kW/m
Effective slope	5 °	Transmissivity	0.887, 0.876, 0.858, 0.838, 0.826 & 0.752
Site slope	0 °	Viewfactor	0.5881999999999999, 0.4337, 0.2903, 0.1949, 0.1589 & 0.0435
Flame width	100 m	Minimum distance to < 40 kW/m²	6.1 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	8.300000000000001 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	12.4 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	18.3 m
		Minimum distance to < 10 kW/m²	22.3 m

Rate of Spread - Noble et al. 1980

Flame length - Purton, 1982

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

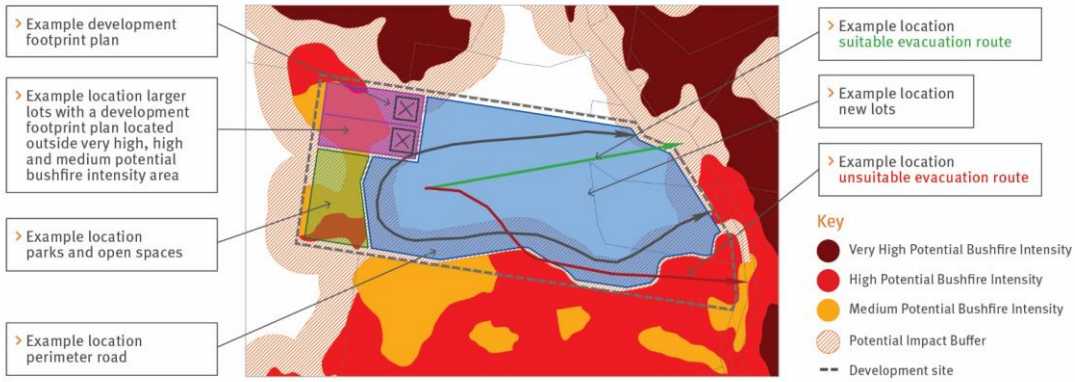
Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Appendix 7 Bushfire overlay code assessment

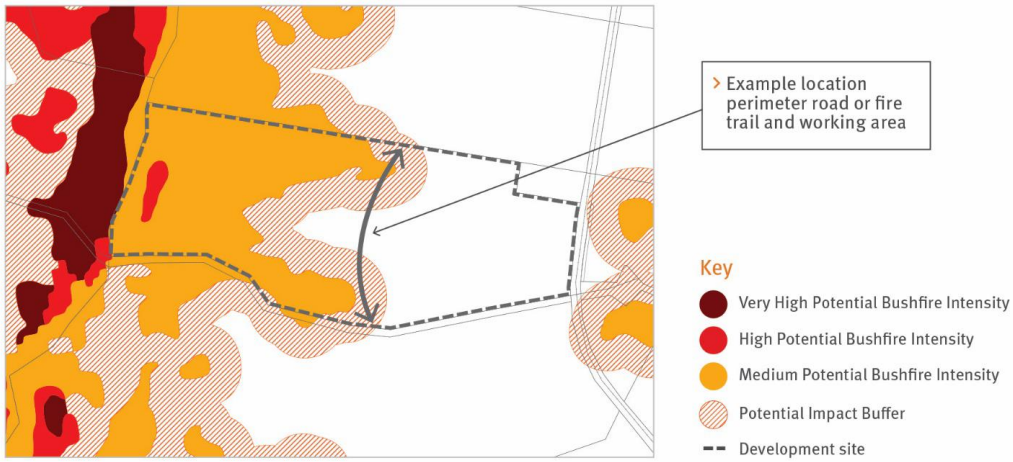
Performance outcomes	Acceptable outcomes	Compliance assessment
Section A **Reconfiguring a lot (RaL) – where creating lots of more than 2,000 square metres**		
PO1 The subdivision layout: (a) enables future buildings to be located away from slopes and land forms that expose people or property to an intolerable risk to life or property; and (b) facilitates emergency access and operational space for firefighters in a reduced fuel area between future buildings and structures and hazardous vegetation, that reduce risk to an acceptable or tolerable level. Note – An applicant may seek to undertake a site-level verification of the location and nature of hazardous vegetation and resulting potential bushfire intensity levels, for example where changes in foliage have occurred (e.g. as a consequence of adjoining permanent urban development) or where an applicant seeks to verify the regional ecosystem map inputs. This verification should form part of a bushfire hazard assessment in accordance with the methodology in the QFES *Bushfire resilient communities* document. The outcomes of this assessment can demonstrate how an alternate solution to the acceptable outcome can deliver an acceptable or tolerable level of risk.	**AO1.1** A development footprint plan is identified for each lot that avoids ridgelines, saddles and crests where slopes exceed 15 per cent. **AO1.2** A development footprint plan is identified for each lot that is separated from the closest edge to the adjacent mapped medium, high or very high potential bushfire intensity area by: (a) a distance that is no closer than the distances specified in Table 5 at all development footprint plan boundaries; or (b) a distance that achieves a radiant heat flux level of 29 kW/m2 or less at all development footprint plan boundaries. Note – This separation area is often termed an asset protection zone. Note – The radiant heat flux levels can be established by undertaking a bushfire hazard assessment in accordance with the methodology in the QFES Bushfire resilient communities document.	**Complies with PO1** Some of the proposed ridgetop allotments in stage 13 and super allotments are > 2,000 square metres (**m²**). Future development within the proposed super allotments will be subject to separate development applications. Section 6.6 of the bushfire management plan (**BMP**) requires development footprints within the proposed ridgetop allotments to be located immediately adjacent to the new road and does not permit development footprints with long driveways that could compromise access for emergency services. Section 6.6 of the BMP also requires vegetation within the proposed ridgetop allotments to be maintained with a low level of discontinuous bushfire fuel, ie as a non-bushfire hazard class area.
PO2 The subdivision layout enables: (a) future buildings to be located as close as possible to property entrances to facilitate safe evacuation during a bushfire event; and (b) future site access to be located and designed to allow safe evacuation of the site by occupants and maintain access by emergency services under critical event conditions.	**AO2** A development footprint plan is identified for each lot that: (a) is located within 60 metres of the street frontage; and (b) sited to enable a route between the development footprint plan and the street frontage with a gradient that does not exceed of 12.5 per cent.	**Complies with PO2** Refer to the response to PO1.
Section B		
Reconfiguring a lot (RaL) – where creating lots of 2,000 square metres or less		

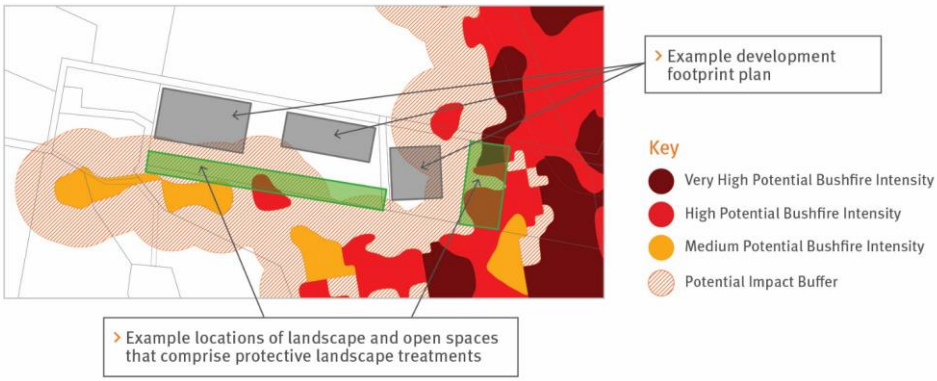
Performance outcomes	Acceptable outcomes	Compliance assessment
PO3 The subdivision layout: (a) avoids creating lots on slopes and land forms that expose people or property to an intolerable risk to life or property; and (b) facilitates emergency access and operational space for firefighters in a reduced fuel area between future buildings and structures and hazardous vegetation, that reduce risk to an acceptable or tolerable level. Note – An applicant may seek to undertake a site-level verification of the location and nature of hazardous vegetation and resulting potential bushfire intensity levels, for example where changes in foliage have occurred (e.g. as a consequence of adjoining permanent urban development) or where an applicant seeks to verify the regional ecosystem map inputs. This verification should form part of a bushfire hazard assessment, in accordance with the methodology in the QFES *Bushfire resilient communities* document. The outcomes of this assessment can demonstrate how an alternate solution to the acceptable outcome can deliver an acceptable or tolerable level of risk.	**AO3.1** The subdivision layout results in lots that are sited so that they are separated from the closest edge to the adjacent mapped medium, high or very high potential bushfire intensity area by: (a) a distance that is no closer than the distances specified in Table 5 at all lot boundaries; or : (b) a distance that achieves a radiant heat flux level of 29 kW/m^2 or less: (i) at the building envelope, if identified at RaL stage; or (ii) where a building envelope is not identified, at all lot boundaries. Note – This separation area is often termed an asset protection zone. Note – The radiant heat flux levels can be established by undertaking a bushfire hazard assessment in accordance with the methodology in the QFES *Bushfire resilient communities* document. Note – For staged developments, temporary separation areas may be absorbed as part of subsequent stages. Note - Existing cleared areas external to the site may only be used in calculating necessary separation where tenure ensures that the land will remain cleared of hazardous vegetation (for example the land is a road, watercourse or highly managed park in public ownership).	**Complies with AO3.1** The proposed residential allotments will have boundaries or development footprints which are setback from hazardous vegetation by a distance which achieves a radiant heat flux level ≤ 29 Kilowatts(**kW**)/m^2. Section 6.3 of the BMP requires construction of proposed residential lots 3740-3759 within stage 12 to be deferred until there is certainty about the design of the arterial road corridor, including the final constructed landform, retention or clearing of hazardous vegetation, landscaping and the installation of noise attenuation barriers.
	AO3.2 The subdivision layout does not create lots that are within bushfire prone areas and on ridgelines, saddles and crests where slopes exceed 15 per cent (roads and parks may be located in these areas).	**Complies with AO3.2** The approved Flagstone Context Area – 3 (**CA-3**) context plan identifies slope affected land in the central part of the site. Most of the slope affected land will be developed with large residential allotments, ie the proposed ridgetop allotments in stage 13, which will be maintained free of hazardous vegetation. However, a conservation park, ie proposed lot 91304, will also be established on the slope affected land and was assessed as a bushfire hazard area in Section 3.4. Section 6.1 of the BMP requires an asset protection zone (**APZ**) to be

Performance outcomes	Acceptable outcomes	Compliance assessment
		established within the proposed residential lots adjoining the conservation park, ie proposed lot 91304. The APZ will separate development footprints from hazardous vegetation in the conservation park by a distance which achieves a radiant heat flux level ≤ 29 kW/m^2.
Section C		
Reconfiguring a lot (RaL) – where creating more than 20 lots		
PO4 The subdivision layout is designed to minimise the length of the development perimeter and number of lots exposed to hazardous vegetation. Note – For example, avoid finger-like subdivision patterns or substantive vegetated corridors between lots.	**AO4** No acceptable outcome is prescribed	**Complies with PO4** The site is within the Greater Flagstone Urban Development Area (**UDA**) and the proposed development is in accordance with the approved Flagstone CA-3 context plan. As development occurs within the Greater Flagstone UDA the area of hazardous vegetation adjoining the site will diminish. The proposed development uses esplanade roads to separate most of the proposed allotments from hazardous vegetation that is proposed to be retained or rehabilitated within open space areas identified by the approved Flagstone CA-3 context plan. The proposed residential allotments will have boundaries or development footprints which are setback from hazardous vegetation by a distance which achieves a radiant heat flux level ≤ 29 kW/m^2. Development within the proposed super allotments will be subject to separate development applications.
PO5 The subdivision layout provides for adequate access and egress and safe evacuation routes, to achieve an acceptable or tolerable risk to people.	**AO5.1** The subdivision layout: (a) avoids the creation of bottle-neck points in the movement network within the development (for example, avoids hourglass patterns); and (b) ensures the road network has sufficient capacity for the evacuating population. **AO5.2** The subdivision layout ensures evacuation routes: (a) direct occupants away from rather than towards or through areas with a greater	**Complies with PO5** Access and egress for the proposed development will be via connections to the future arterial road along the eastern boundary of the site, ie New Beith Road, and the road network within the north part of Flagstone CA-3 via a connection through the Flagstone Creek corridor. The proposed new road network will be designed and constructed in accordance with the design criteria for an urban fire truck. As future development occurs in accordance with existing approved context plans, ie the approved Flagstone CA-1 and CA-3 context plans, and proposed context plans, ie

Performance outcomes	Acceptable outcomes	Compliance assessment
	potential bushfire intensity; and (b) minimise the length of route through bushfire prone areas. Refer Figure 5.	Economic Development Queensland (EDQ) application reference DEV2023/1413, bushland vegetation will be cleared from the land adjoining the eastern boundary of the site and the potential impact of bushfire hazard areas on evacuation routes will be diminished.
 *Figure 5 – Subdivision layout and evacuation routes*		
PO6 The subdivision layout provides adequate buffers between hazardous vegetation and development. Note – An applicant may seek to undertake a site-level verification of the location and nature of hazardous vegetation and resulting potential bushfire intensity levels, for example where changes in foliage have occurred (e.g. as a consequence of adjoining permanent urban development) or where an applicant seeks to verify the regional ecosystem map inputs. This verification should form part of a bushfire hazard assessment, in accordance with the methodology in the QFES *Bushfire resilient communities* document. The outcomes of this assessment can demonstrate how an alternate solution to the acceptable outcome can deliver an acceptable or tolerable level of risk.	**AO6.1** The subdivision layout results in an asset protection zone being located to create a separation area from adjacent mapped medium, high or very high potential bushfire intensity areas. **AO6.2** The asset protection zone is comprised of: (a) parks and open spaces; and/or (b) lots greater than 2000 square metres; and/or (c) public roads (termed perimeter roads). Note – Parks and open space may be located within the mapped medium, high and very high potential bushfire intensity areas to create a separation between the development and the balance of the bushfire prone area. Note – Portions of lots greater than 2000 square metres may be located within the mapped medium, high and very high potential bushfire intensity areas. Refer Figure 5. **AO6.3** Where the asset protection zone includes lots greater than 2000 square metres a development footprint plan is identified for each lot that is located in accordance with AO1.2.	**Complies with AO6.1 and AO6.2** Section 6.1 of the BMP requires APZs to be established within proposed residential lots 3475, 3559 to 3566, 4206-4210, 4218-4226, and 4229-4238 and proposed medium density lot 50041. It also requires an APZ to be established within proposed childcare lots 50036 and 50037 and conservation park lot 90901. The APZs are identified in Figures 6.2, 6.3, 6.6 and 6.7 of the BMP. Otherwise, the setbacks required to achieve the radiant heat exposure outcome specified in AO3.1 are contained within a combination of esplanade road reserves and proposed sports parks (regional and district) and recreation parks (neighbourhood, local and linear). For compliance with the outcome sought by AO6.3 refer to the response to AO1.2.

Performance outcomes	Acceptable outcomes	Compliance assessment
PO7 Parks or open space provided as part of the asset protection zone do not create additional bushfire prone areas. Note –The undertaking of a bushfire hazard assessment, in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this performance outcome.	**AO7** Where the asset protection zone includes parks or open spaces, they: (a) comprise only low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, golf courses, maintained public reserves and parklands, cultivated gardens and nature strips; or (b) are designed to ensure a potential available fuel load is maintained at less than eight tonnes/hectare in aggregate and with a fuel structure that remains discontinuous. Note – Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short-cropped grass to a nominal height of 10 centimetres.	**Complies with AO7** Landscaping within the proposed sports parks (regional and district) and recreation parks (neighbourhood, local and linear) will be in accordance with the *Flagstone Context Area 3 Landscape Masterplan 2024* and will result in a low level of discontinuous bushfire fuel. The proposed sports parks (regional and district) and recreation parks (neighbourhood, local and linear) will be maintained at regular time intervals during the calendar year. Woody regrowth, weeds, rubbish and vegetation debris will be removed, and areas of turf will be maintained as lawn at a nominal height ≤ 100 millimetres (**mm**).
PO8 Perimeter roads are accessible for fire-fighting vehicles, to facilitate emergency access and operational space for fire- fighting, maintenance works and hazard reduction activities.	**AO8.1** Where the asset protection zone includes a perimeter road it: (a) has a two-lane sealed carriageway clear of hazardous vegetation; and (b) is connected to the wider public road network at both ends and at intervals of no more than 200 metres; and (c) does not include design elements that may impede access for fire-fighting and maintenance for fire- fighting purposes (for example traffic calming involving chicanes).	**Complies with AO8.1 and AO8.2** The proposed new road network road complies with AO8.1(a)-(c).
	AO8.2 Where the subdivision contains a reticulated water supply, the road network and fire hydrants are designed and installed in accordance with: (a) *Fire Hydrant and Vehicle Access Guidelines for residential, commercial and industrial lots*, Queensland Fire and Emergency Services, 2015, unless otherwise specified by the relevant water entity; and (b) the *Road Planning and Design Manual 2nd edition*, Department of Transport and Main Roads, 2013.	**Complies with AO8.2** Sections 6.8 and 6.9 of the BMP requires the road network and hydrants to be designed in accordance with AO8.2(a)-(b).
Section D		

Performance outcomes	Acceptable outcomes	Compliance assessment
Reconfiguring a lot (RaL) – where creating additional lots for the purpose of residential development and a reticulated water supply is not provided.		
PO9 The subdivision layout provides for perimeter roads or fire trail and working areas that are accessible by the type of fire-fighting vehicles servicing the area, to facilitate emergency access and operational space for fire-fighting, maintenance works and hazard reduction activities.	**AO9.1** The subdivision layout includes: (a) a fire trail and working area designed and constructed in accordance with the design parameters in Table 6 that separates the residential lot or development footprint plan from adjacent mapped medium, high or very high potential bushfire intensity areas; or (b) a perimeter road designed and constructed in accordance with AO8.1. Refer Figure 6.	**Not applicable** The proposed development will be connected to mains water.
 *Figure 6 – Siting of fire trail and working area*		
Section E		
Material change of use		
PO10 Site layout achieve an acceptable or tolerable risk to people. Landscape or open space provided as part of the development: (a) acts as a buffer between hazardous vegetation and development; and (b) does not create additional bushfire prone areas. Note – An applicant may seek to undertake a site-level verification of the location and nature of hazardous vegetation and resulting potential bushfire intensity levels, for example where	**AO10.1** Site layout places the landscape and open spaces within the site between premises and adjacent mapped medium, high or very high potential bushfire intensity areas. Refer Figure 7.	**Not applicable**
	AO10.2 This landscaping and open space comprises protective landscape treatments that: (a) comprise only low threat vegetation, including	**Not applicable**

Performance outcomes	Acceptable outcomes	Compliance assessment
changes in foliage have occurred (e.g. as a consequence of adjoining permanent urban development) or where an applicant seeks to verify the regional ecosystem map inputs. This verification should form part of a bushfire hazard assessment in accordance with the methodology in the QFES *Bushfire resilient communities* document. The outcomes of this assessment can demonstrate how an alternate solution to the acceptable outcome can deliver an acceptable or tolerable level of risk.	grassland managed in a minimal fuel condition, maintained lawns, golf courses and cultivated gardens; or (b) are designed to ensure a potential available fuel load is maintained at less than 8 tonnes/hectare in aggregate and that fuel structure remains discontinuous. Note – Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short-cropped grass to a nominal height of 10 centimetres.	
 *Figure 7 – Siting of protective landscape treatments*		
PO11 The development establishes evacuation areas, to achieve an acceptable or tolerable risk to people.	**AO11** If in an isolated location, development establishes direct access to a safe assembly/evacuation area. Note – Guidance on identifying safe evacuation areas is contained in the QFES *Bushfire resilient communities* document.	**Not applicable**
PO12 If on a lot of over 2,000 m^2, where involving a new premises or an existing premises with an increase in development footprint, development: (a) locates occupied areas as close as possible to property entrances to facilitate safe evacuation during a bushfire event; and (b) ensures vehicular access is located and designed to allow safe evacuation of the site by occupants and maintain access by emergency services under critical event conditions	**AO12** No acceptable outcome is prescribed.	**Not applicable**
PO13 Development is located	**AO13** No acceptable outcome is	**Not applicable**

Performance outcomes	Acceptable outcomes	Compliance assessment
within a reticulated water supply area or includes a dedicated static water supply that is available solely for fire-fighting purposes and can be accessed by fire-fighting vehicles. Note – Swimming pools, farm ponds and dams are not considered reliable sources of static water supply in Queensland due to regular drought events. Note for Local Government – Information on how to provide an appropriate static water supply, may form a condition of a development approval. For further information on preferred solutions refer to the QFES *Bushfire resilient communities* document.	prescribed	
PO14 Vulnerable uses listed in Table 7 are not established or intensified within a bushfire prone area unless: (a) there is an overriding need in the public interest for the new or expanded service the development provides; and (b) there are no other suitable alternative locations within the required catchment; and (c) site planning can appropriately mitigate the risk (for example, siting ovals for an educational establishment between the hazardous vegetation and structures. Note – The preparation of a bushfire management plan in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this performance outcome	**AO14.1** No acceptable outcome is prescribed.	**Complies with PO14** The proposed development includes super allotments for a local centre, district centre, ambulance station, childcare centres, community centre, state primary school, medium density residential and a balance allotment. The ambulance station, childcare centres and state primary school are defined as vulnerable uses in Table 7 of the *Natural Hazards, Risk and Resilience – Bushfire, State Planning Policy State Interest guidance material* (DSDMIP 2019) (**SPP guidance material – bushfire**). Section 9.4 of *Bushfire Resilient Communities Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Riska and Resilience – Bushfire 2019* identifies that site planning for a vulnerable use development may incorporate APZs that separate development footprints from the closest edge of hazardous vegetation by a distance (APZ width) that achieves a radiant heat flux level ≤ 10 kW/m^2 at the development footprint. Vulnerable use development within the proposed super allotments will be subject to separate development applications. Section 6.1 and 6.2 provide specifications requiring a 10 kW/m^2 APZ to be established within the proposed state primary school lot 30015 and childcare lots 50036 and 50037.
PO15 Community infrastructure providing essential services listed in Table 7 are not established within a bushfire prone area	**AO15** No acceptable outcome is prescribed.	**Complies with PO15** The proposed state primary school allotment and ambulance station allotment are also defined as

Performance outcomes	Acceptable outcomes	Compliance assessment
unless: (a) there is an overriding need in the public interest for the new or expanded service the development provides (for example, there are no other suitable alternative locations that can deliver the required level of service or meet emergency service response times during and immediately after a bushfire event); and (b) the infrastructure can function effectively during and immediately after a bushfire event. Note – The preparation of a bushfire management plan in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this performance outcome.		community infrastructure for essential services in Table 7 of the SPP guidance material – bushfire. As stated in response to PO14, community infrastructure for essential services will be subject to separate development applications. Refer to PO14 and Section 6.1 of the BMP for site planning that will be applied to the proposed state primary school allotment. The proposed ambulance station allotment will be separated from hazardous vegetation by the north-south arterial road, ie New Beith Road, shown in the approved Flagstone CA-3 context plan and the proposed Regional Sports Park within the site.
PO16 Development avoids or mitigates the risks to public safety and the environment from the manufacture or storage of materials listed in Table 7 that are hazardous in the context of bushfire to an acceptable or tolerable level. Note – The preparation of a bushfire management plan in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this acceptable outcome. Editor's note – In addition to the requirements of this code the *Work Health and Safety Act 2011* and associated Regulation and Guidelines, the *Environmental Protection Act 1994* and the relevant building assessment provisions under the *Building Act 1975* contain requirements for the manufacture and storage of hazardous substances. Information is provided by Business Queensland on the requirements for storing and transporting hazardous chemicals, available at: www.business.qld.gov.au/running-business/protecting-business/risk-management/hazardous-chemicals/storing-transporting.	**AO16** No acceptable outcome is prescribed.	**Not applicable** Section 6.7 of the BMP requires future development involving a retail service station to be separated from hazardous vegetation by a distance which achieves a radiant heat flux level ≤ 10 kW/m^2 at the development footprint.
Section F		
Where involving an asset protection zone		
PO17 Asset protection zones are designed and managed to ensure they do not increase the potential for bushfire hazard.	**AO17.1** Landscaping treatments within any asset protection zone comprise only low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, golf courses, maintained	**Complies with AO17.1 and AO17.2** Sections 6.1-6.5 of the BMP provide specifications for establishing and maintaining APZs.

Performance outcomes	Acceptable outcomes	Compliance assessment
Note – The preparation of a landscape management plan undertaken in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this performance outcome.	public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks. Note – Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short-cropped grass to a nominal height of 10 centimetres. OR	Landscaping within the proposed residential allotments will be designed and maintained in accordance with Part 5 of *Bushfire Resilient Building Guidance for Queensland Homes 2020.* Landscaping within the proposed sports parks (regional and district) and recreation parks (neighbourhood, local and linear) will be in accordance with the *Flagstone Context Area 3 Landscape Masterplan 2024* and will result in a low level of discontinuous bushfire fuel. Landscaping will be maintained at regular time intervals during the calendar year. Woody regrowth, weeds, rubbish and vegetation debris will be removed, and areas of turf will be maintained as lawn at a nominal height ≤ 100 mm.
	AO17.2 Landscaping management within any asset protection zone maintains a: (a) potential available fuel load which is less than eight tonnes/hectare in aggregate; and (b) fuel structure which is discontinuous. Note – The preparation of a landscape management plan undertaken in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this acceptable outcome.	
Section G		
Where planning provisions or conditions of approval require revegetation or rehabilitation		
PO18 Revegetation or rehabilitation areas are designed and managed to ensure they do not result in an unacceptable level of risk or an increase in bushfire intensity level. Note – The undertaking of a bushfire hazard assessment in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this performance outcome.	**AO18.1** Required revegetation or rehabilitation: (a) is located outside of any asset protection zone; or (b) maintains a potential available fuel load which is less than eight tonnes/hectare in aggregate and fuel structure which is discontinuous. Note – The preparation of a landscape management plan undertaken in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with acceptable outcome (b).	**Complies with AO18.1(a) and AO18.2** Bushland vegetation will be retained and rehabilitated within the proposed conservation buffer and corridor parks. With the exception of proposed conservation park lot 90901, these areas are located outside of the APZs specified in Section 6.1 of the BMP. Landscaping within the proposed stormwater management lot 91201 will result in a grassfire hazard adjoining proposed residential allotments. An 8 m wide maintenance access path or area landscaped with turf will be established and maintained within the proposed stormwater management lot 91201 along the boundary of proposed lots 3559, 3566 and 3740 as shown in Figures 6.3 and 6.5 of the BMP. Specifications for the establishing and maintaining the APZ and 8 m wide maintenance access path are provided in Sections 6.2 and 6.5 of the BMP, respectively.
	AO18.2 Revegetation or rehabilitation of areas located within mapped medium, high or very high potential bushfire intensity areas, revegetate and rehabilitate in a manner that maintains or reduces the existing fuel load. OR Revegetation or rehabilitation of areas located within the mapped potential impact buffer area, revegetate and rehabilitate in a manner that maintains or reduces	

Performance outcomes	Acceptable outcomes	Compliance assessment
	the existing fuel load. Note – The preparation of a vegetation management plan undertaken in accordance with the methodology in the QFES *Bushfire resilient communities* document may assist in demonstrating compliance with this acceptable outcome.	

Table 6 – Fire trail and working area design parameters

Parameter	Provisions
Width	Contains a width of at least 20 metres including: 1. A trafficable area (cleared and formed); a. with a minimum width of 4 metres than can accommodate a rural firefighting vehicle b. with no less than 4.8 metres vertical clearance from canopy vegetation c. with no adjacent inhibiting embankments or retaining walls 2. A working area each side of the trafficable area: a. with a minimum width of 3 metres each side b. cleared of all flammable vegetation greater than 10 centimetres in height 3. The balance (i.e. 10 metre width) managed vegetation area: a. sited to separate the trafficable area from adjacent mapped medium, high or very high potential bushfire intensity areas managed vegetation b. comprising managed vegetation clear of major surface hazards.
Access	Access is granted in favour of the local government and Queensland Fire and Emergency Services Note – this access is commonly granted in the form of a easement that is to be maintained by the grantor.
Egress	Contains trafficable vehicle routes in to low hazard areas, every 200 metres

Table 7 – Vulnerable uses, community infrastructure for essential services and materials that are hazardous in the context of bushfire hazard

Group	Uses
Vulnerable uses	*childcare centre, community care centre, detention facility, educational establishment, hospital, nature-based tourism, relocatable home park, rooming accommodation, residential care facility, resort complex, retirement facility, tourist park*
Community infrastructure for essential services	*educational establishment, emergency services, hospital*
Hazardous materials in the context of bushfire hazard	Hazardous chemicals that are present at the levels or in the quantities that would constitute the use being a hazardous chemical facility Hazardous materials that are present in the quantities in the Work Health and Safety Regulation, schedule 15