Metro Outer Development Assessment Panel Agenda

Meeting Date and Time: Wednesday, 24 June 2026; 9:30am
Meeting Number: MODAP/145
Meeting Venue: 140 William Street, Perth

A live stream will be available at the time of the meeting, via the following link:
MODAP/145 - 24 June 2026 - Shire of Murray

PART A – INTRODUCTION

1. Opening of Meeting, Welcome and Acknowledgement
2. Apologies
3. Noting of Minutes

PART B – SHIRE OF MURRAY

1. Declarations of Due Consideration
2. Disclosure of Interests
3. Form 1 DAP Applications
   - 3.1 Lot 977 Nancarrow Way, Ravenswood - Proposed Child Care Centre Premises – DAP/26/03078
4. Form 2 DAP Applications
5. Section 31 SAT Reconsiderations

PART C – OTHER BUSINESS

1. State Administrative Tribunal Applications and Supreme Court Appeals
2. Meeting Closure

Please note, presentations for each item will be invited prior to the items noted on the agenda and the presentation details will be contained within the related information documentation

DAP Members
Dale Page (Presiding Member)
Eugene Koltasz (Deputy Presiding Member)
Mike Mouritz
Cr Angela Rogers (Part B – Shire of Murray)
Cr Nicole Willis (Part B – Shire of Murray)

DAP Secretariat
Tenielle Brownfield
Ashlee Kelly

PART A – INTRODUCTION

1. Opening of Meeting, Welcome and Acknowledgement

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PART B – SHIRE OF MURRAY

1. Declarations of Due Consideration

2. Disclosure of Interests

3. Form 1 DAP Applications

3.1 Lot 977 Nancarrow Way, Ravenswood - Proposed Child Care Centre Premises – DAP/26/03078

4. Form 2 DAP Applications

Nil

5. Section 31 SAT Reconsiderations

Nil

Part B – Item 3.1 – LOT 977 NANCARROW WAY, RAVENSWOOD – PROPOSED CHILD CARE PREMISES

Form 1 – Responsible Authority Report
(Regulation 12)

DAP Name:	Metro Outer DAP
Local Government Area:	Shire of Murray
Applicant:	IQ Premium Homes Pty Ltd / Plan WA
Owner:	DJM Ravenswood
Value of Development:	$2.063 million
Responsible Authority:	Local Government
Authorising Officer:	Greg Delahunty, Manager Planning and Environment
LG Reference:	P085/2026
DAP File No:	DAP/26/03078
Application Received Date:	9/3/26
Report Due Date:	16/6/26
Application Statutory Process Timeframe:	90 Days (with 14 days agreed extension)
Attachment(s):	1. Revised Plans 2. Applicant Planning Report 3. Bushfire Management Plan 4. Bushfire Emergency Plan 5. Design Statement 6. Traffic Impact Statement 7. Revised Acoustic Assessment 8. Method 2 BAL Assessment Peer Review 9. Updated Method 2 Calculation 10. Applicant's responses to Method 2 Peer Review and DFES 11. Schedule of Submissions 12. DFES Submission

Responsible Authority Recommendation

That the Metro Outer Development Assessment Panel resolves to:

Approve DAP Application reference DAP/26/03078 and accompanying plans:

Plan Number	Sheet Name	Rev	Rev Date
P 000	Cover Sheet	4	26 Mar. '26
P 100	Existing Site Plan	4	26 Mar. '26
P 101	Proposed Site Plan	6	09 Jun. '26
P 102	Proposed Parking Layout	4	26 Mar. '26

P 103	Proposed Landscaping	4	26 Mar. ’26
P 104	Stormwater Plan	4	26 Mar. ’26
P 200	Ground Floor	4	26 Mar. ’26
P 300	Elevations	4	26 Mar. ’26
P 301	Fencing Elevations	5	01 Jun. ’26
P 400	Sections	4	26 Mar. ’26

in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015,* and the provisions the Shire of Murray *Local Planning Scheme No. 4*, subject to the following conditions:

Conditions

1. This decision constitutes development approval only and is valid for a period of four (4) years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval shall lapse and be of no further effect.

Construction Management

2. Prior to submission of a building permit application, a Construction and Traffic Management Plan is to be submitted to and approved by the Local Government, addressing but not limited to:

   (i) hours of construction;
   (ii) temporary fencing, hoardings, gantries, and signage;
   (iii) site access and egress;
   (iv) construction traffic management;
   (v) pedestrian and cyclist management and any footpath obstructions;
   (vi) parking arrangements for staff and contractors;
   (vii) deliveries and storage of construction materials and machinery;
   (viii) management of vibration, dust, wind, and erosion;
   (ix) management of any site dewatering or stormwater discharge;
   (x) management of construction noise and other site generated noise;
   (xi) construction waste management, recycling, and removal;
   (xii) protection of street trees and public realm infrastructure; and
   (xiii) public communication and complaint handling procedures.

   The approved Construction and Traffic Management Plan shall be implemented and adhered to at all times by the owners and/or managers of the development, to the satisfaction of the Local Government.

Parking

3. Prior to the submission of an application for a building permit, the parking bay(s) and points of ingress and egress are to be designed in accordance with AS/NZS 2890.1:2004 Parking facilities - Off-street car parking to the satisfaction of the Local Government,

The car parking bays and accessways are to be constructed, kerbed, drained and line marked prior to the development first being occupied and thereafter maintained in a sound state of repair to the satisfaction of the Local Government.

4. No parking bays shall be obstructed in any way or used for purposed of storage.

5. Staff car bays 10 and 11 are to be line marked as Staff Bays and are not to be occupied prior to 7am.

6. End of trip bicycle facilities including a shower and lockers are to be provided within the development site with the facilities implemented in accordance with the Austroads' Guide to Traffic Engineering Practice Part 14: Bicycles and AS 2890.3 Parking facilities Bicycle parking to the satisfaction of the Local Government.

7. Prior to the development first being occupied, the car parking area shall be provided with one shade tree for every four (4) car parking bays. The trees shall be located within tree wells and protected from damage by vehicles. Prior to planting, the species and height of the trees is to be approved by the Local Government. Once planted, the trees shall be maintained in a healthy condition at all times to the satisfaction of the Local Government.

Landscaping

8. Prior to the submission of an application for a building permit an updated detailed landscaping plan for the development site and the abutting street verges shall be submitted to and approved by the Local Government. The landscape plan must include:

   (i) the location, number and type of existing and proposed trees and shrubs, including calculations for the landscaping area;
   (ii) any lawns to be established and areas to be mulched;
   (iii) those areas to be reticulated or irrigated;
   (iv) proposed upgrading to landscaping, paving and reticulation of the street setback area and all verge areas;
   (v) internal footpath(s) to integrate with the external footpath network.

   The approved landscaping, paving and reticulation must be installed prior to the occupation of the development and must be maintained at all times to the satisfaction of the Local Government for the duration of the development.

Drainage

9. Prior to the submission of an application for a building permit a stormwater and drainage design plan shall be submitted to and approved by the Local Government. The approved plan must be implemented to the satisfaction of the Local Government prior to the occupation of the development and thereafter maintained in a functional condition for the duration of the development.

Sustainability

10. The energy efficiency and sustainability initiatives outlined in the Sustainable Design Report prepared by Greenhive Eco dated 24/02/26 are to be implemented in the design and operation of the development.

Amenity

11. Prior to the submission of an application for a building permit, all service areas and service-related hardware, including antennae, satellite dishes and air-conditioning units, must be designed to be located away from public view and/or screened, and this design must be provided to, and approved by, the Local Government.

12. Prior to the submission of an application for a building permit the recommendations of Part 7 of the Herring Storer Acoustics Environmental Noise Acoustic Ref: 36025-2-26049 (Rev2) shall be incorporated within the design. The recommendations of Part 7 of the report shall be implemented for the duration of the development.

13 Prior to the occupation of the development, a final Acoustic Assessment must be prepared and provided to the Local Government which demonstrates that the completed development complies with the Environmental Protection (Noise) Regulations 1997. The Final Acoustic Assessment must include the following information:

(i) noise sources compared with the assigned noise levels as stated in the Environmental Protection (Noise) Regulations 1997, when the noise is received at the nearest “noise sensitive premises” and surrounding residential area;
(ii) tonality, modulation and impulsiveness of noise sources; and
(iii) confirmation of the implementation of noise attenuation measures.

Any further works must be carried out in accordance with the Acoustic Report and implemented as such for the duration of the development.

Bushfire

14. Prior to the submission of an application for a building permit the landowner/applicant shall submit plans and information to the satisfaction of the Local Government for the modification of a 6m apron within the adjoining Jones Park Public Open Space to a low threat bushfire fire standard.

The approved plan shall be implemented to the satisfaction of the Local Government prior to the occupation of the development.

15. The requirements of the Bushfire Management Plan dated 16 February 2026 and Bushfire Emergency Plan dated 4 March 2026 prepared by Bushfire Prone Planning are to be adhered to for the duration of the development.

Signage

16. Prior to the installation of any signage, a signage strategy shall be submitted and approved by the Local Government for the overall development site in accordance with the Shire of Murray Signs Local Planning Policy. Only signage consistent with the approved signage strategy is to be installed.

Operational Management

17. Hours of operation for the Child Care Premises is limited to between 7.00am to 6.30pm, Monday to Friday, excluding public holidays. Staff may arrive from 6.30am.

18. The Child Care Premises shall be limited to a maximum 72 children at any one time.

Waste Management

19. The enclosed bin store/service/dry court store area shall be designed and constructed in accordance with the Shire of Murray Health Local Laws. Individual bins shall be fitted with suitable covers at all times and stored within the enclosure as shown on the development plans. The enclosure is to provide screening to a minimum height of 1.8 metres in a durable material which is visually compatible with the proposed building, to the satisfaction of the Local Government.

20. A hard stand area designed to the satisfaction of the Local Government shall be provided for the storage of bins for collection on the road verge between the lot boundary and footpath, to accommodate the waste bins on bin pick up days.

Advice to the applicant

1. In relation to the landscape plan conditions the updated landscape plan should include provision of a Hard Scape Plan along with civil plans and provide details of the installation of the hard surfaces such as paving, paths, footpath to kerb, drainage and other related infrastructure.

2. In relation to signage strategy condition once the signage strategy has been approved, modifications to the signage strategy will require further approval from the Local Government.

3. Should the preparation and provision of food be proposed as part of the Child Care Premises operation, the operator will be required to apply for and receive a food business registration from the Local Government.

4. In relation to Condition 14, it is acknowledged, following modification by way of partial clearing of the reserve by the proponent, this 6m apron will be maintained by the Local Government to a low threat bushfire fire standard.

5. In relation to Condition 19, it is advised that Colorbond is a suitable material.

Details: outline of development application

Region Scheme	Peel Region Scheme
Region Scheme - Zone/Reserve	Urban
Local Planning Scheme	Local Planning Scheme No.4
Local Planning Scheme - Zone/Reserve	Special Development
Structure Plan/Precinct Plan	Ravenswood East Structure Plan
Structure Plan/Precinct Plan - Land Use Designation	Local Centre
Use Class and permissibility:	D
Lot Size:	1,619m²
Existing Land Use:	Vacant
State Heritage Register	No
Local Heritage	☒ N/A ☐ Heritage List ☐ Heritage Area
Design Review	☒ N/A ☐ Local Design Review Panel ☐ State Design Review Panel ☐ Other
Bushfire Prone Area	Yes
Swan River Trust Area	No

Proposal:

The application proposes a 490m² Child Care Premises building with a 505m² external playscape.

The centre is designed to accommodate a total of 72 children and 11 staff members.

The hours of operation are proposed to be Monday to Friday between 7.00am to 6:30pm, with staff arriving from 6.30am.

18 car bays have been provided with vehicular access being obtained from Jolly Rambler Boulevard.

The building is designed with substantial setbacks to both Nancarrow Way and Jolly Rambler Boulevard.

Key details are summarised in the table below:

Proposed Land Use	Child Care Premises
Proposed Net Lettable Area	490m²
Proposed No. Storeys	Single
Proposed No. Dwellings	N/A

In order to meet bushfire planning requirements, the proposal relies upon the management of vegetation within the adjoining Jones Park Public Open Space (POS). This approach has been supported by the Shire.

Background:

The site is a vacant lot located surrounded by three street frontages.

It forms part of a broader street block containing the Jones Park POS and the Ravenswood Community Hall, located directly opposite a future primary school site. It sits directly opposite existing residential development on the two remaining frontages.

The site is zoned Special Development under the Shire's Local Planning Scheme No.4 (LPS4) and designated as a Local Centre under the Ravenswood East Structure Plan.



Context Plan

Legislation and Policy:

Legislation

- Planning and Development Act 2005
- Peel Region Scheme (PRS)
- Planning and Development (Local Planning Schemes) Regulations 2015 (Regulations).
- Shire of Murray Local Planning Scheme No.4 (LPS4).

State Government Policies

- State Planning Policy 4.2 - Activity Centres
- State Planning Policy 7.0 - Design Built Environment
- State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP3.7)
- Revised Draft Position Statement: Child care premises

Structure Plans/Activity Centre Plans

- Ravenswood East Structure Plan

Local Policies

- General Development Provisions Building Setbacks Car Parking Standards
- Signs
- Child Care Services

Consultation:

Public Consultation

As the proposal has the potential to impact on the amenity of the nearby residential area, it was advertised by way of a notice in the local newspaper, letters to proximate landowners and a notice placed on the Shire's website.

At the close of advertising two submissions were received both supporting the proposal. One submission did, however, highlight a concern with potential impacts to the intersection of Nacarrow Way and Pinjarra Road.

Issue Raised	**Officer comments**
Impacts on the Nancarrow Way and Pinjarra Road	The Shire has assessed the submitted traffic report and considers that the traffic generated by the development does not trigger an upgrade to the intersection of Nancarrow Way and Pinjarra Road. The Shire understands that Main Roads WA intends to upgrade this intersection to a signalised intersection and that recent subdivision approvals, within the Ravenswood area, have been required to make a proportional contribution to this upgrade.

Referrals/consultation with Government/Service Agencies

Department Fire Emergency Services (DFES)
DFES outlined the following concerns: • Further evidence required to substantiate the vegetation classification of Area 3. • The Shire of Murrays commitment to manage the 6m apron inside the adjoining POS is not binding. • The method 2 BAL assessment cannot be validated.
Shire Comment Bushfire is discussed in the assessment section of this report.

The Schedule of Submissions is located at **Appendix 11**.

Design Review Panel Advice

Not applicable

Swan Valley Planning

Not applicable

Other Advice

Not applicable

Planning Assessment:

The proposal has been assessed against all the relevant requirements of the Scheme, State and Local Planning Policies outlined in the Legislation and Policy section of this report. The following matters have been identified as key considerations for the determination of this application:

- Land Use Permissibility;
- Child Care Services Local Planning Policy
- Design
- Bushfire;
- Noise; and
- Car and Bicycling parking.

Land Use Permissibility

The site is zoned Special Development under LPS4, within which a Child Care Premises is a discretionary (D) land use.

The Ravenswood East Structure Plan identifies the lot as 'Local Centre', implying a commercial designation. LPS4 does not contain a 'Local Centre' zone or associated land use permissibility table; however, Child Care Premises is a discretionary use in all Centre and Commercial related zones under LPS4. The proposed use is therefore consistent with the commercial intent of the Structure Plan's 'Local Centre' designation.

Child Care Services Local Planning Policy (Policy)

The Policy establishes standards for child care services to minimise amenity impacts on surrounding land uses. The subject site, situated in close proximity to a future school and an existing community hall, satisfies the Policy's location criteria. The Policy also includes criteria relating to design, parking and acoustic impacts, which are covered below.

Design

The site layout accommodates an appropriately sized building and play space, with functional parking and manoeuvring areas. The building design responds sensitively to its residential context through the use of a pitched roof, generous setbacks, and residential-style fencing. Although acoustic fencing is required to meet noise consideration, the use of infill glass panels ensures that the fence will positively contribute to the streetscape.

Parking is largely screened from two of the three street frontages, with the primary parking area located on Jones Lane opposite the future school site. A footpath connection to Jolly Rambler Boulevard further enhances pedestrian amenity and integration with the surrounding locality.

Overall, the design responds appropriately to its context.

Bushfire

The subject site is designated bushfire prone. In support of the proposal, the applicant submitted a Bushfire Management Plan (BMP) and a Bushfire Emergency Plan.

The BMP applies a Method 2 Bushfire Attack Level (BAL) assessment to determine the bushfire risk posed by the adjoining POS. This assessment established that a 10m Asset Protection Zone (APZ) is required between the building and the abutting POS vegetation to achieve a BAL-29 rating. Given the building's original setback of 4.76m from the boundary, a 5.24m apron within the POS would have required ongoing management in perpetuity.

As the proposal involves a vulnerable land use under the bushfire planning framework, referral to DFES was mandatory. DFES did not support the Method 2 BAL assessment, advising that the model inputs are not accepted in a Western Australian context.

In response to DFES's concerns, the applicant agreed to an independent peer review of the Method 2 assessment, conducted by a Level 3 Practitioner with experience in both Western Australia and New South Wales. The peer review affirmed that the methodology and vegetation classification were sound, but identified a potential issue with the use of a flat slope in the calculation.

Engineering drawings of the adjoining POS basin confirmed a slight slope beneath the vegetation (0.46°), which increased the required setback to 11m to achieve BAL-29 compliance.

Accordingly, the applicant amended the site plan to incorporate a 5m on-site setback. Combined with a proposed 6m managed low-threat area within the POS, this provides the 11m separation required to achieve BAL-29.

A condition is recommended requiring the applicant to establish a 6m low-threat area within the POS, to the satisfaction of the Shire, prior to occupation. The Shire will then assume ongoing responsibility for maintaining this apron as part of its regular maintenance regime. This approach is consistent with the BMP approved at subdivision stage, which committed to managing the POS to a low-threat condition.

Noise

An acoustic report has been submitted demonstrating that the development can achieve compliance with the *Environmental Protection (Noise) Regulations 1997*. To maintain that compliance, the following operational requirements apply:

- two specific car bays must not be occupied prior to 7am;
- vehicles must not be started on site prior to 7am;
- children must not play outside prior to 7am; and
- acoustic fencing is required around the outdoor play area.

Consequently, it is recommended that relevant conditions be placed on the approval to ensure that the requirements of the acoustic report are implemented.

Car parking

Under the Policy, parking must be provided at one bay per staff member, plus 11.25 bays per 72 children i.e. a total requirement of 23 bays. The development provides 18 bays, representing a shortfall of five.

The applicant has submitted a parking demand analysis asserting that 18 bays are sufficient to meet actual demand and has requested that discretion be exercised with respect to the shortfall. This position is supported on the following grounds:

- 15 public parking bays are available in close proximity to the site;

- bicycle parking has been provided, and a condition requiring end-of-trip facilities is recommended; and
- given the surrounding residential catchment, a proportion of families are likely to arrive on foot.

Conclusion:

The proposed Child Care Premises is consistent with the planning framework and the commercial intent of the Ravenswood East Structure Plan.

The key technical matters of bushfire management, acoustic amenity and car parking have each been resolved to a satisfactory standard, with outstanding requirements capable of being addressed through recommended conditions. The development responds sensitively to its residential context and will contribute positively to the locality.

Having regard to the above, the proposal is recommended for conditional approval.







SHEET LIST

	Sheet Name	Stage	By	Date	Rev	Description	Rev Date	Revised By
P 000	Cover Sheet	PLANNING	WM	02 Dec. '25	4	Door Placements	26 Mar. '26	SV
P 100	Existing Site Plan	PLANNING	WM	02 Dec. '25	4	Door Placements	26 Mar. '26	SV
P 101	Proposed Site Plan	PLANNING	WM	02 Dec. '25	6	DA 5m Setback	09 Jun. '26	WM
P 102	Proposed Parking Layout	PLANNING	WM	02 Dec. '25	4	Door Placements	26 Mar. '26	SV
P 103	Proposed Landscaping	PLANNING	WM	02 Dec. '25	4	Door Placements	26 Mar. '26	SV
P 104	Stormwater Plan	PLANNING	WM	02 Dec. '25	4	Door Placements	26 Mar. '26	SV
P 200	Ground Floor	PLANNING	WM	02 Dec. '25	4	Door Placements	26 Mar. '26	SV
P 300	Elevations	PLANNING	WM	02 Dec. '25	4	Door Placements	26 Mar. '26	SV
P 301	Fencing Elevations	PLANNING	WM	02 Dec. '25	5	DA Fencing Amendments	01 Jun. '26	WM
P 400	Sections	PLANNING	WM	02 Dec. '25	4	Door Placements	26 Mar. '26	SV

Total Sheets: 10

CONSTRUCTION
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NOTES

All areas are approximate only. Design is subject to site conditions, location of services, energy efficiency compliance and approval of relevant authorities.

BUILDER _____ DATE _____

CLIENT 1 _____ DATE _____

CLIENT 2 _____ DATE _____

REV	DATE	DESCRIPTION	BY	CHK
4	26 Mar. '26	Door Placements	SV	DB
3	24 Feb. '26	Planning	WM	DB
2	04 Dec. '25	Concept	WM	
1	02 Dec. '25	Concept	WM	

CLIENT: Ravenswood Childcare

ADDRESS: Lot 977 Nancarrow Way,Ravenswood

DRAWING: Cover Sheet

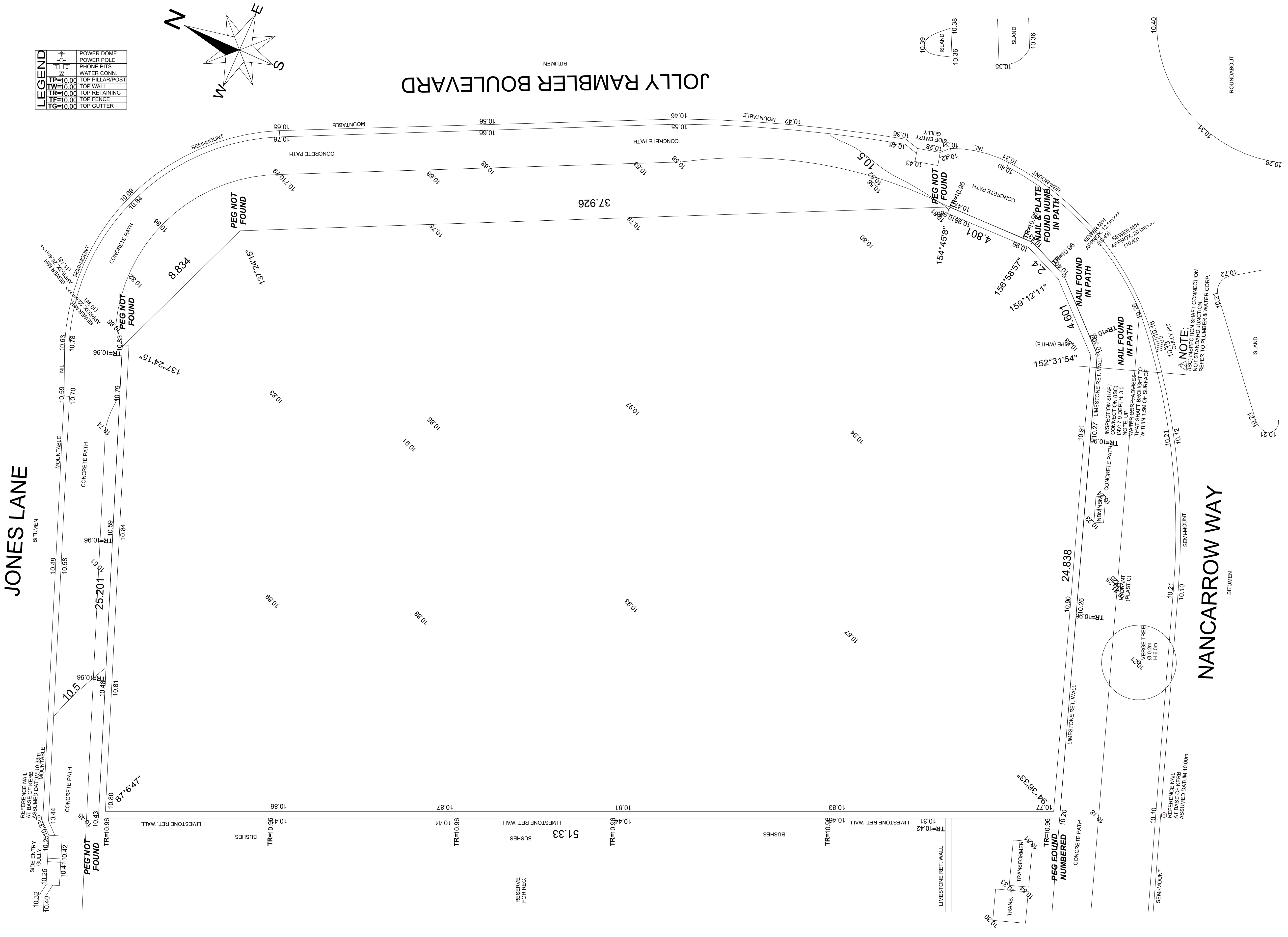
PROJECT NO.: 1609

PAPER SIZE: A3 | DRAWN: WM | CHECK: SV | DATE: 02 Dec. '25

PROJECT STAGE: PLANNING

SCALE: 1:100 (0m — 5m)

DRAWING NO.: P 000 rev 4



Existing Site Plan

1 : 200



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BUILDER _________ DATE _________
CLIENT 1 _________ DATE _________
CLIENT 2 _________ DATE _________

REV	DATE	DESCRIPTION	BY	CHK
4	26 Mar. '26	Door Placements	SV	DB
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CLIENT: Ravenswood Childcare
ADDRESS: Lot 977 Nancarrow Way,Ravenswood
DRAWING: Existing Site Plan
PROJECT NO. 1609
DRAWN WM
CHECK SV
PROJECT STAGE PLANNING
SCALE 1:200
0m 10m
PAPER SIZE A2
DATE 02 Dec. '25
DRAWING NO. rev 4
P100

Parking Schedule

Type	Qty.	Description
5400 x 2400 (WheelStop) Staff Bay	9	Standard Carpark Bay
5400 x 2400 (Without Wheelstop) Staff Bay	1	Standard Carpark Bay
5400 x 2600 (WheelStop) Visitor Bay	8	Standard Carpark Bay
	18	

BUILDER'S NOTES

- Builder to check all dimensions prior to commencing construction. Do not scale drawings.
- All site dimensions dependant on original and future surveys.
- These drawings are to be read in conjunction with all structural engineering drawings.
- All external steelwork including lintels and post stirrups to be hot dipped galvanised.
- All external fixings to be galvanised.
- All steel strutting beam sizes are nominal only and are to be checked by builder before construction.
- Select brickwork with selected external render where specified externally.
- Timber studwork construction with select cladding externally.
- All timber sizes not indicated shall comply with the light timber framing code AS 1684.
- All roof framing to Australian Standards, including tie down bolts and triple grips.
- All strutting beam sizes and locations are nominal only and to be confirmed by builder prior to commencing.
- Termite treatment to local authority requirements and NCC Part 3.1.3, Part 2.1.1 and Part 1.0.7.
- Builder to liaise with plumbing contractor on site regarding all plumbing fixtures and fittings.
- All non-standard windows where indicated on drawings to comply with Australian Standards.
- All scaffolding to comply with the occupational health, safety and welfare act.
- Electric hot water system to manufacturer's requirements.
- Electric cooktop to manufacturer's requirements.
- Electric oven to manufacturers' requirements.

ENERGY RATING

- Climate zone 5, as per Building Codes of Australia
- No floor insulation required for zone 5 areas.
- Select ceiling insulation to house and attached garage.
- All tap fittings other than bath outlets and garden taps to be a minimum 4 star WELS rated.
- All shower heads to be minimum 3 star WELS rated.
- All internal hot water outlets (taps, showers, washing machine water supplies) to be connected to a hot water system or to a recirculating hot water system with pipes installed and insulated in accordance with AS/NZ 3500:2003. plumbing and drainage, part 4 heated water service.
- Pipework from the hot water system or recirculating hot water system to the furthermost hot water outlet must not exceed 20 metres in length or 2 litres of internal volume.
- All sanitary flushing systems to be a minimum 4 star rated dual flush systems.

BAL 29

Description of predicted bushfire attack & levels of exposure

Increasing levels of ember attack & burning debris ignited by wind borne embers together with increasing heat flux between 19 and 29kW/m2

Floors & Subfloor Supports
- Concrete slab on ground, enclosure by external wall, metal mesh as above or
- Flooring less than 400mm above ground level to be non-combustible, naturally fire resistant timber or protected on the underside with sarking or mineral wool insulation
- Subfloor supports to be enclosed by external walls or steel, bronze or aluminium mesh or be of non-combustible supports
- Where subfloor is unenclosed, naturally fire resistant timber or non-combustible bearers & joints if closer than 400mm to ground. If over 400mm from ground non construction requirements

Walls & Cladding
- All external walls & cladding to be made from non-combustible materials, cavity brick, concrete, mud brick, stone, fibre cement panels min 9mm thin, steel cladding
- Timber framed, steel framed walls sarked on outside and clad with 6mm fibre cement sheeting, steel sheeting, naturally bushfire resistant timber or timber logs of 680kg/m3 or greater o/a thickness 90mm
- All weep holes to be protected by weep hole screens complying with AS3959:2018

Roofs
- Cladding material to be non-combustible
- Gaps and joints sealed to 2mm maximum
- Openings and vents fitted with ember guards
- Fully sarked on top of rafters if tiled, on top of battens if metal
- Verandahs must comply with above, unless separated from main roof space by wall
- Gutters made from non-combustible materials, gutters and openings protected with non-combustible ember guards as per AS 3959-2018

Fascia, Barge & Eave Lining
- All material or system to comply with AS1530.8.1 See eave details
- Fibre cement lining min 6mm
- Eaves ventilation openings max 3 mm shall be fitted with non-combustible ember guards, mesh or perforated sheet with max aperture of 2 mm
- Joints in eaves linings, fascias & gables may be sealed with plastic joining strips or timber moulds

Anticon, Insulation & Infill strips
- Insulation & anticon required in roof and ceiling space as per AS 1530.1
- All insulation and anticon to be made from non-combustible fibres
- Infill strips required on steel roofing under cappings and flashings to seal any opening - infill strips to conform to bushfire standards AS 1530.1 (BAL FZ)

Decking (if applicable)
- Decking to be made of non-combustible material and should not be spaced
- Decking support either be non-combustible) steel or concrete) or be fully enclosed
- Gaps greater than 3mm in decking should be protected by corrosion resistant steel mesh with apertures less than 2mm

Windows
- Bushfire shutters cab be used
- All glazing shall be 5mm toughened
- Openable portion screened and frame of metal or metal reinforced PVC-U, or bushfire resisting timber and portion within 400mm of ground level to be screened

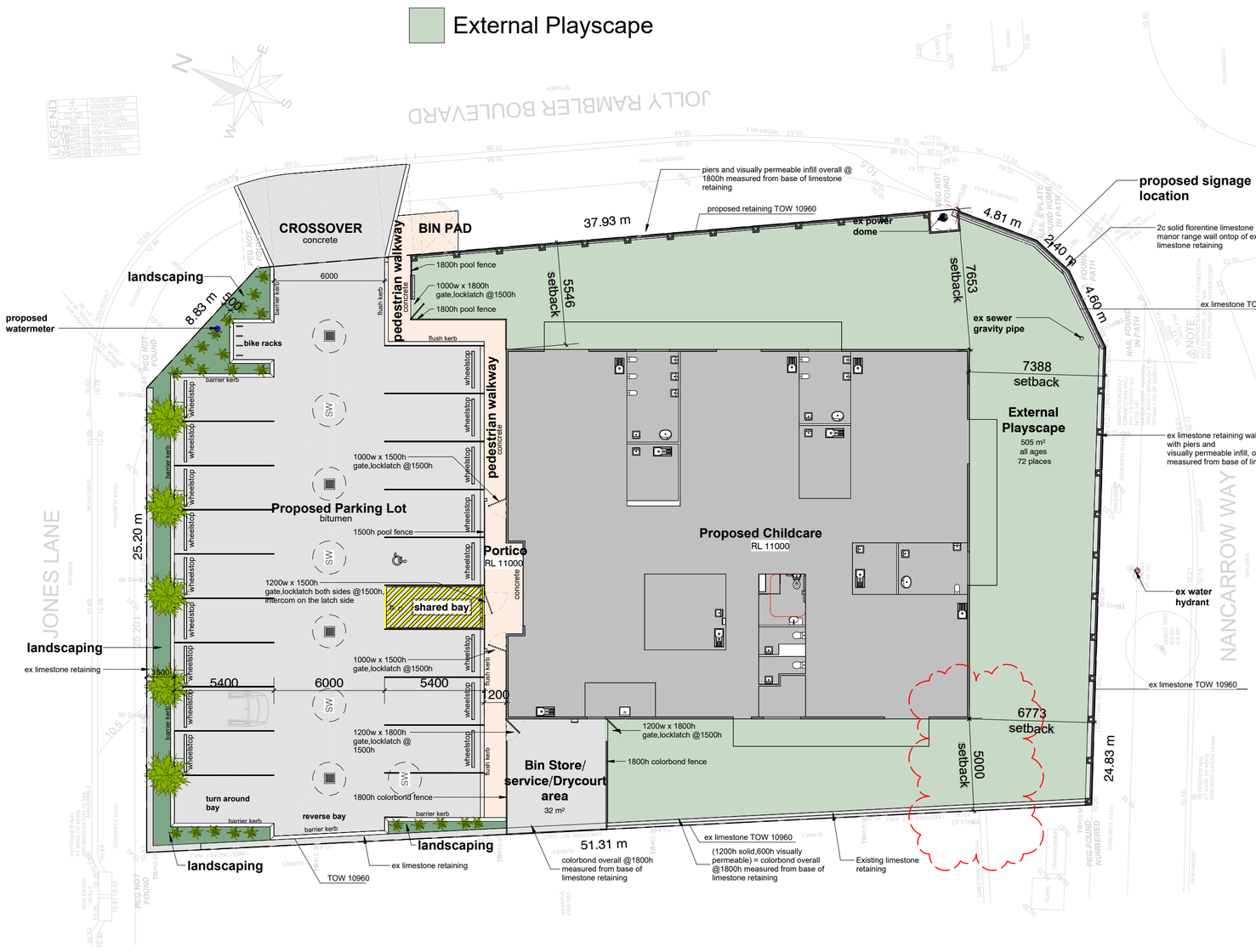
Doors
- Metal framed glazed
- Non-combustible or 35 mm solid timber
- Protected externally with metal screens with maximum aperture of 2mm
- All glass within 400mm of ground to be screen externally with metal screen max 2mm aperture
- External hardware shall be metal
- Glazing shall be 6mm toughened
- Frame to be compliant timber or metal
- Weather strips or seal to base
- Tight fitting
- If screened, bushfire compliant
- Garage door shall be sealed

Skylights & Ventilators
- Any glazed penetrations in roof must have a FRL of (-/30/-) & where roof pitch is less than 18° glazed penetrations must be protected by ember proof metal screens
- No roof mounted evaporative coolers allowed
- Any ventilator to comply with BAL40 requirements

Gables
- Non-combustible; or 9mm fibre cement, compliant timber
- Gaps and joints sealed to 2mm maximum

Pipes
- Exposed water and gas pipes shall be metal
- Buried pipes no less than 30mm below ground

Screens
- All bushfire screens must be metal (steel or bronze) and prevent gaps greater than 2mm



Proposed Site Plan

1 : 200

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Fax: (08) 9399 8564
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BUILDER _____ DATE _____

CLIENT 1 _____ DATE _____

CLIENT 2 _____ DATE _____

REV	DATE	DESCRIPTION	BY	CHK
6	09 Jun. '26	DA 5m Setback	WM	DB
5	01 Jun. '26	DA Fencing Amendments	WM	DB
4	26 Mar. '26	Door Placements	SV	DB
3	24 Feb. '26	Planning	WM	DB

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CLIENT: Ravenswood Childcare

ADDRESS: Lot 977 Nancarrow Way,Ravenswood

DRAWING: Proposed Site Plan

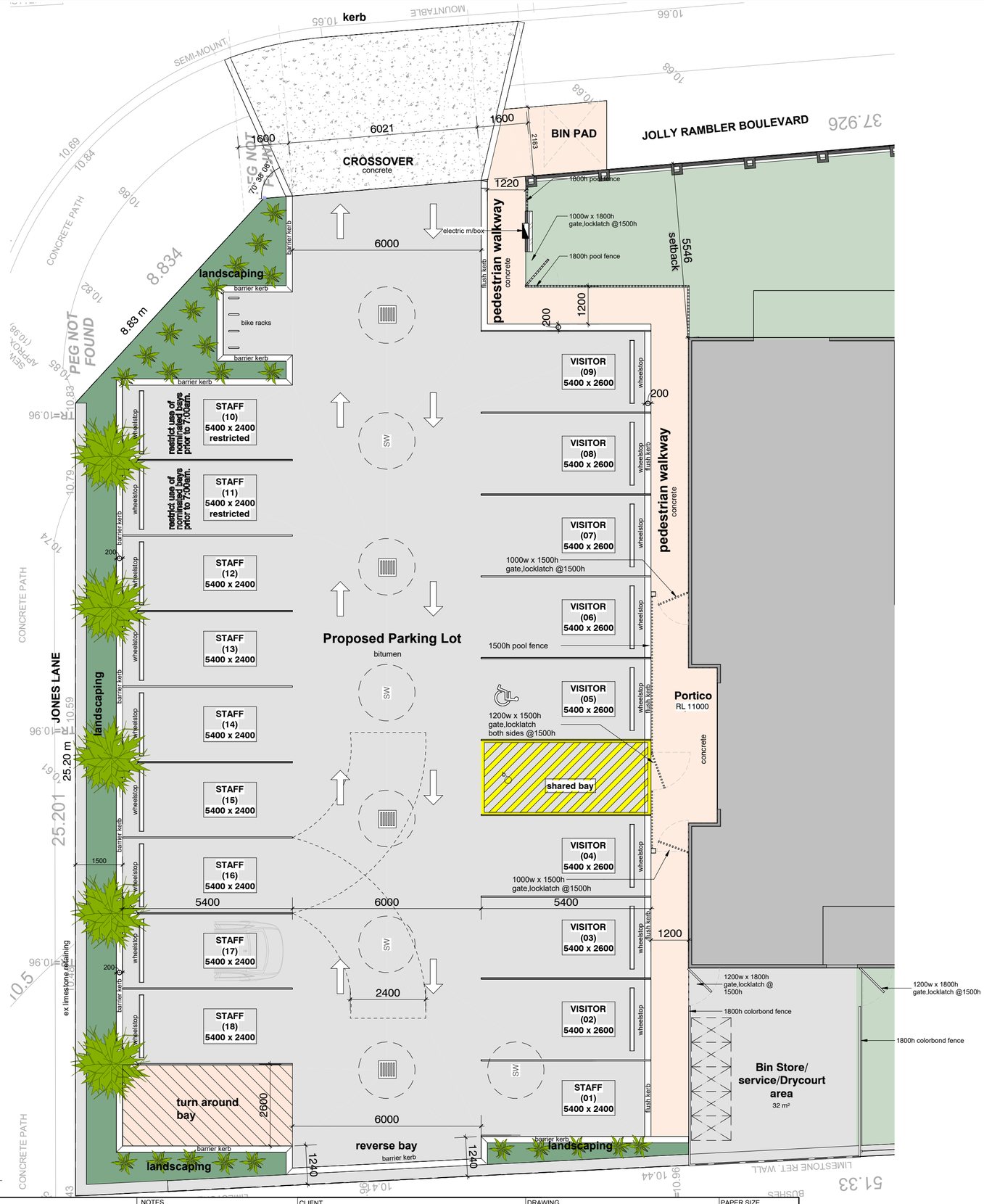
PROJECT NO. 1609 | DRAWN WM | CHECK SV | DATE 02 Dec. '25

PROJECT STAGE: PLANNING | SCALE 1:200 (0m — 10m) | DRAWING NO. rev 6 P101

PAPER SIZE: A2

Parking Schedule

Type	Qty.	Description
5400 x 2400 (WheelStop) Staff Bay	9	Standard Carpark Bay
5400 x 2400 (Without Wheelstop) Staff Bay	1	Standard Carpark Bay
5400 x 2600 (WheelStop) Visitor Bay	8	Standard Carpark Bay
	18	



Proposed Parking Layout

1 : 100

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BUILDER _____ DATE _____

CLIENT 1 _____ DATE _____

CLIENT 2 _____ DATE _____

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3	24 Feb. '26	Planning	WM	DB
2	04 Dec. '25	Concept	WM	
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CLIENT: Ravenswood Childcare

ADDRESS: Lot 977 Nancarrow Way,Ravenswood

DRAWING: Proposed Parking Layout

PROJECT NO. 1609 | DRAWN WM | CHECK SV | DATE 02 Dec. '25

PROJECT STAGE: PLANNING | SCALE 1:100 (0m — 5m)

PAPER SIZE A2

DRAWING NO. P102 rev 4

PLANTING SCHEDULE

SYMBOL	SPECIES	COMMON NAME	QTY	SIZE	OTHER INFO
TREES:					
AF	Agonis flexuosa	WA Peppermint, Willow Myrtle	5	to 10m	
SHRUBS & GROUNDCOVERS					
HIBhue	Hibbertia huegelii	Yellow Buttercups	45	0.2 - 1m	
ASsco	Astartea scoparia	Common Astartea	45	1.8m	
GRves	Grevillea vestita		35	0.5 - 3m	
MEhue	Melaleuca huegelii	Chenille Honey Myrtle	13	0.5 - 5m	

KEY

	Bird Attracting - Attract and provide habitat for birds
	Insect Attracting - Attract butterflies, bees or insects
	Suitable for Fence Screening/Windbreaks
	Low Flammability - Leaves of these plants have a higher water content and lower oil content than other species. They catch fire slowly, burn slow and produce low flames.
	Dieback Resistant - Known to be unaffected by the presence of Phytophthora dieback
	Suitable for verges Attracting - Some may require pruning to maintain

LARGE TREE

MEDUIM TREE

SMALL TREE

SHRUBS & GROUND COVERS

PLAYSCAPE

EXPOSED AGGREGATE & CONCRETE FLOOR FINISH OR SIMILAR



Agonis flexuosa



Hibbertia huegelii



Melaleuca huegelii



Astartea scoparia



Grevillea vestita



Landscaping Layout

1 : 150

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CLIENT: Ravenswood Childcare

ADDRESS: Lot 977 Nancarrow Way,Ravenswood

DRAWING: Proposed Landscaping

PROJECT NO: 1609 | DRAWN: WM | CHECK: SV

PROJECT STAGE: PLANNING | SCALE: 1:100 (0m — 5m)

PAPER SIZE: A2 | DATE: 02 Dec. '25 | DRAWING NO.: P103 rev 4

STORMWATER

- Stormwater to run into soakwells as per builder's standard specification. All soakwells to be interconnected. Sizes to comply with relevant shire requirements.

SW 1800Ø x 1200 deep soakwell

- Lot area = 1,620m²
- Storage Required (15mm) =1,620 x 0.015 = 24.3m³
- Soakwell capacity (1800Ø x 1200d) = 3.05m³
- Number of soakwells = 8
- Total soakwell storage = 8 x 3.05 = 24.4m³

JOLLY RAMBLER BOULEVARD

37.93 m

CROSSOVER
concrete

BIN PAD

2153

RL 11000

RL 10914

1800h pool fence

1000w x 1800h gate,locklatch @1500h

electric m/box

1800h pool fence

pedestrian walkway
concrete

flush kerb

barrier kerb

landscaping

8.834

8.83 m

PEG NOT FOUND

bike racks

RL 10800

RL 10900

RL 10950

STAFF (10) 5400 x 2400 restricted

restrict use of nominated bays prior to 7:00am.

STAFF (11) 5400 x 2400 restricted

STAFF (12) 5400 x 2400

STAFF (13) 5400 x 2400

STAFF (14) 5400 x 2400

Proposed Parking Lot

bitumen

STAFF (15) 5400 x 2400

STAFF (16) 5400 x 2400

STAFF (17) 5400 x 2400

STAFF (18) 5400 x 2400

VISITOR (09) 5400 x 2600

VISITOR (08) 5400 x 2600

VISITOR (07) 5400 x 2600

VISITOR (06) 5400 x 2600

VISITOR (05) 5400 x 2600

VISITOR (04) 5400 x 2600

VISITOR (03) 5400 x 2600

VISITOR (02) 5400 x 2600

STAFF (01) 5400 x 2400

1000w x 1500h gate,locklatch @1500h

1500h pool fence

1200w x 1500h gate,locklatch both sides @1500h

shared bay

wheelstop

4000

4100

1500

200

SW

JONES LANE

ex limestone retaining

turn around bay

reverse bay

Portico
RL 11000

External Playscape
505 m²

Bin Store/ service/Drycourt area
32 m²

1200w x 1800h gate,locklatch @ 1500h

1200w x 1800h gate,locklatch @1500h

1800h colorbond fence

1800h colorbond fence

4.81 m

2.40 m

4.60 m

24.83 m

24.838

25.201

4.801

4.807

PEG NOT FOUND

NAIL & PLATE FOUND NUMB IN PATH

NAIL FOUND IN PATH

SEWER MH APPROX. 12.5m>>>

CONCRETE PATH

LIMESTONE RET. WALL

INSPECTION SHAFT

NBN/NBN

BUSHES

Stormwater Layout
1 : 100

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CLIENT: Ravenswood Childcare

ADDRESS: Lot 977 Nancarrow Way,Ravenswood

DRAWING: Stormwater Plan

PAPER SIZE: A2

PROJECT NO. 1609 | DRAWN WM | CHECK SV | DATE 02 Dec. '25

PROJECT STAGE: PLANNING

SCALE: 1:100 (0m — 5m)

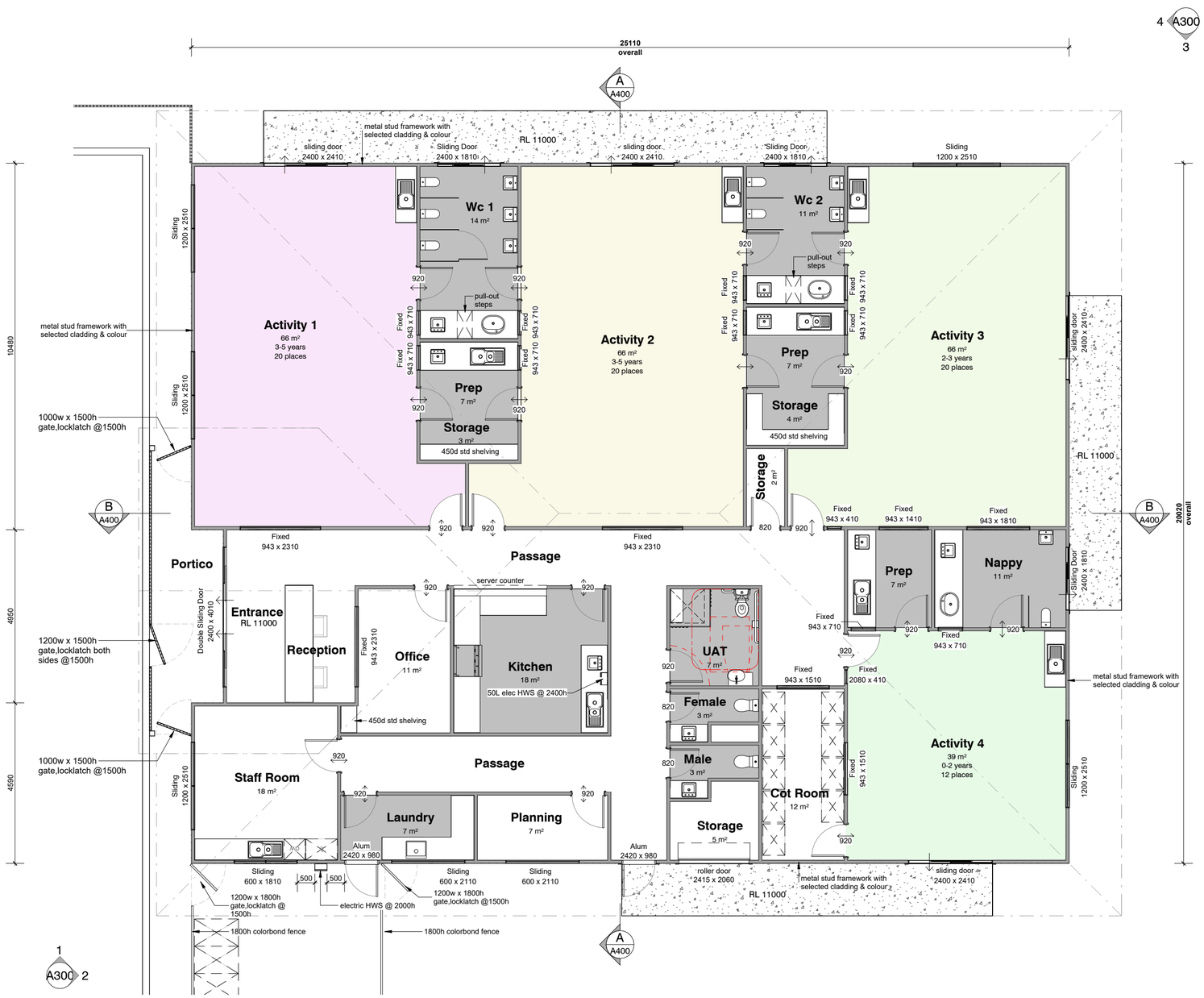
DRAWING NO. P104 rev 4

AREAS

Childcare centre	489.9 m²
TOTAL	489.9 m²

ROOM CALCULATIONS

Room	Ages	Size	Children
Activity 1	3-5	66 m²	20
Activity 2	3-5	66 m²	20
Activity 3	2-3	66 m²	20
Activity 4	0-2	39 m²	12
		238 m²	72



Activity 1
Activity 2
Activity 3
Activity 4

SC structural column to eng. spec

hatch indicates internal raking ceiling extent

hatch indicates ext raking ceiling extent

hatch indicates varied ceiling height

roof beams to eng. details

BUILDER'S NOTES

1 • Mechanically vent to outside
sd • Smoke Detector alarm to be installed in accordance to BCA requirements
dp • Down Pipe location, nominal only. down pipe and gutter to comply to BCA requirements
td • Tie Down, refer to engineer's drawings for specifications
l/o • Lift Off hinge door frame to sanitary compartments BCA requirements

Floor Plan

1 : 100

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CLIENT Ravenswood Childcare

ADDRESS Lot 977 Nancarrow Way,Ravenswood

DRAWING Ground Floor

PAPER SIZE A2

PROJECT NO. 1609

DRAWN WM

CHECK SV

DATE 02 Dec. '25

PROJECT STAGE PLANNING

SCALE 1:100 (0m — 5m)

DRAWING NO. P200 rev 4

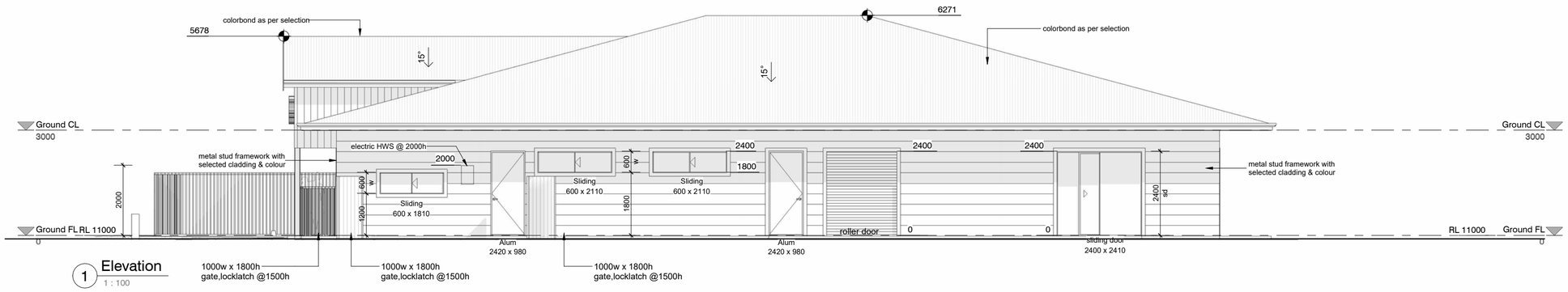
INSULATION NOTES

External Walls:

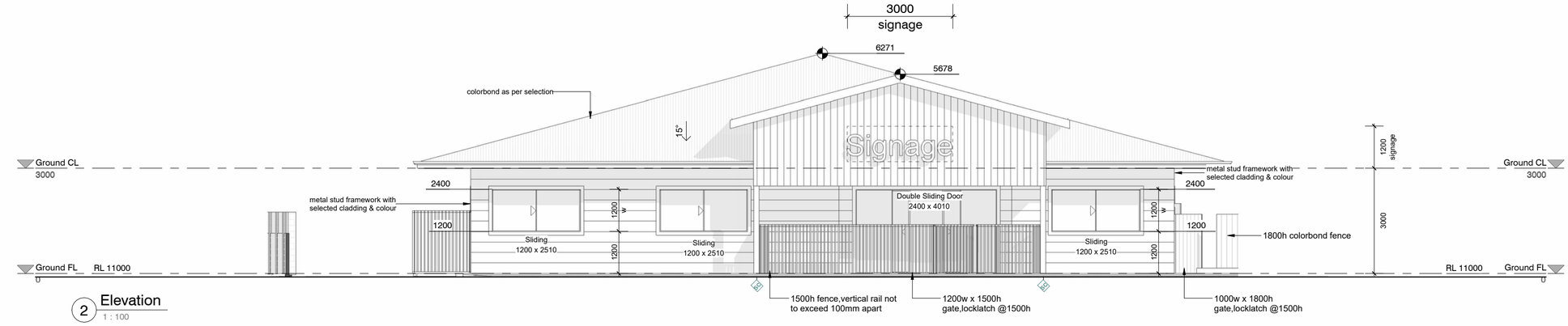
• Metal stud construction

Roof:
- 60mm Anticon insulation to roof space
- R4.0 Bulk insulation to ceilings
-

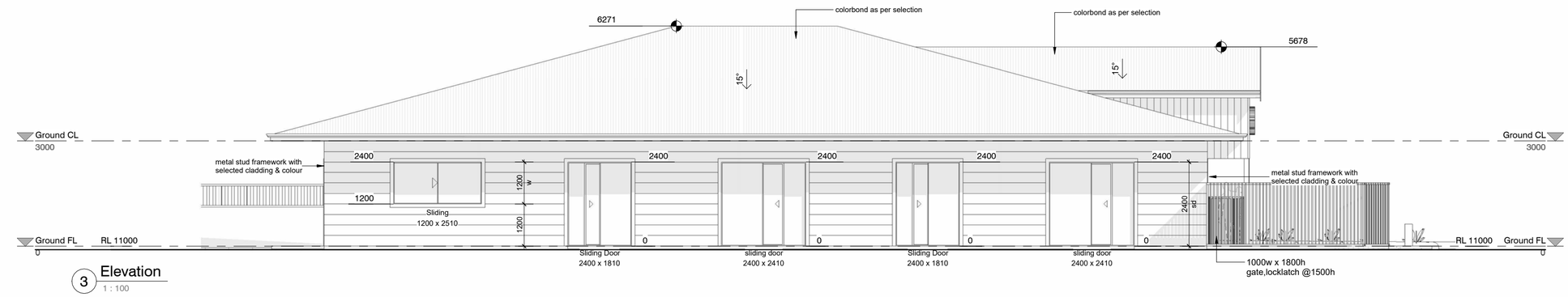
External Wall:
- Sisalation
- Insulation R2.5 Batts HD



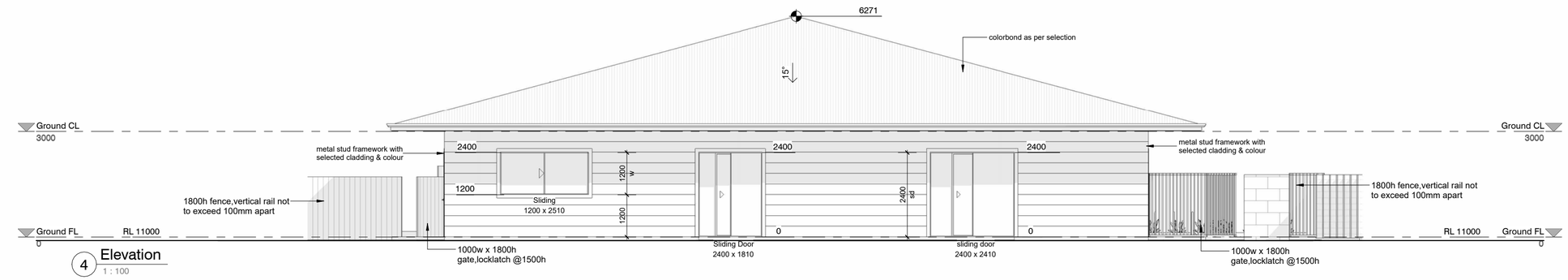
1 Elevation
1 : 100



2 Elevation
1 : 100



3 Elevation
1 : 100



4 Elevation
1 : 100

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BUILDER _____ DATE _____

CLIENT 1 _____ DATE _____

CLIENT 2 _____ DATE _____

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CLIENT: Ravenswood Childcare

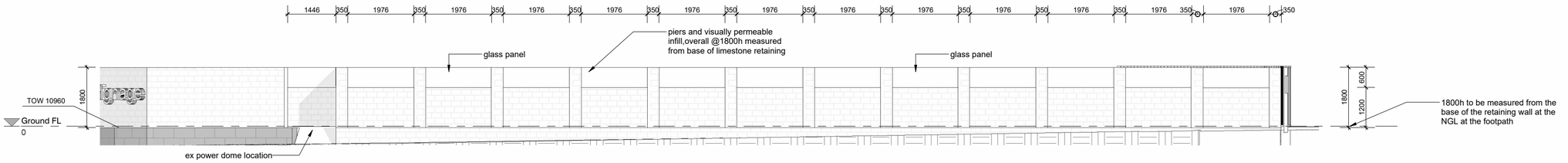
ADDRESS: Lot 977 Nancarrow Way,Ravenswood

DRAWING: Elevations

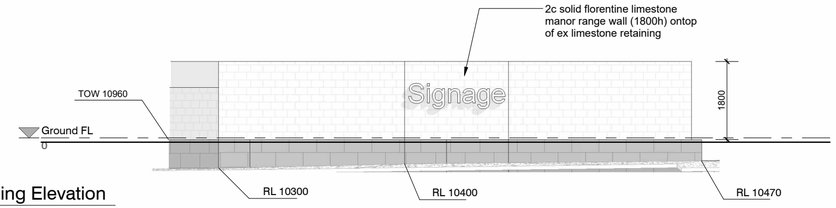
PROJECT NO. 1609 | DRAWN WM | CHECK SV

PROJECT STAGE: PLANNING | SCALE 1:100 (0m – 5m)

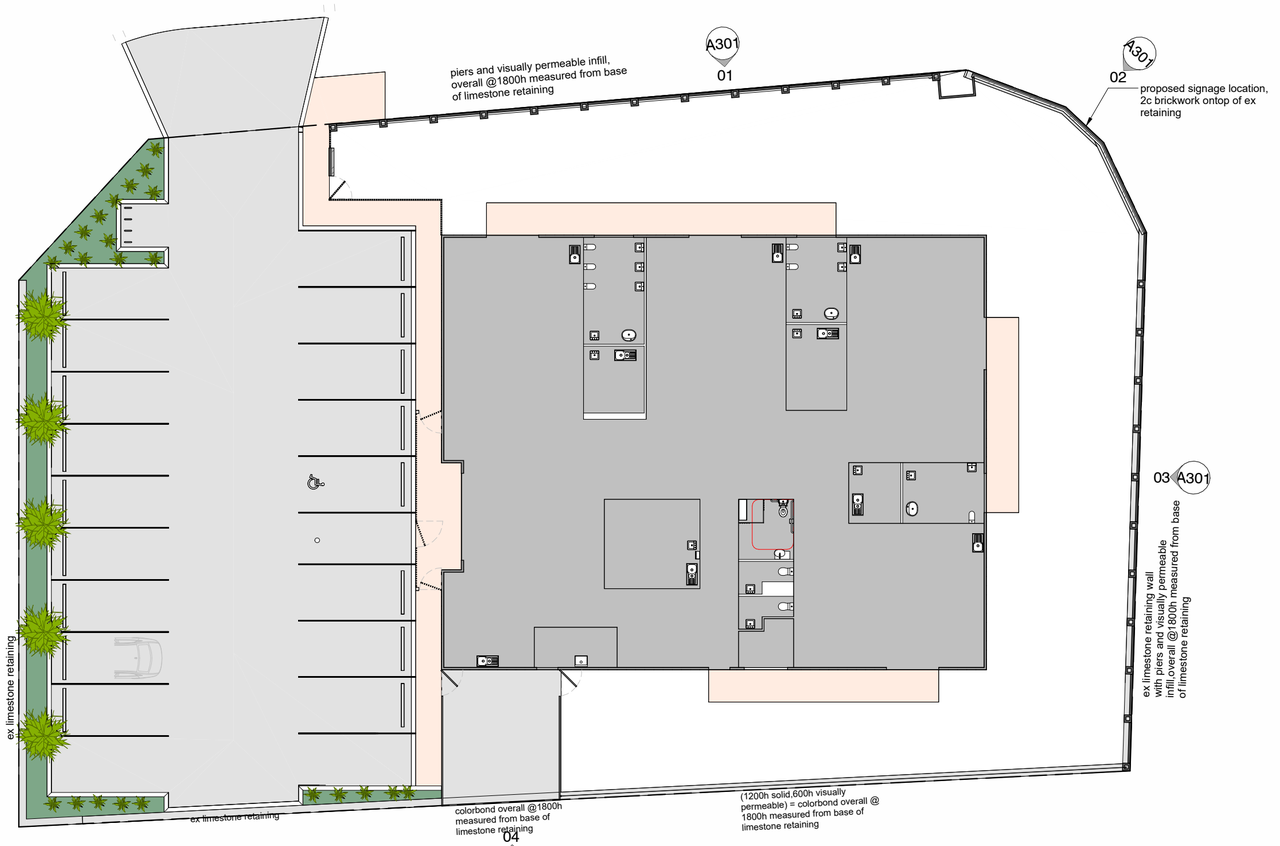
PAPER SIZE: A2 | DATE: 02 Dec. '25 | DRAWING NO. P300 rev 4



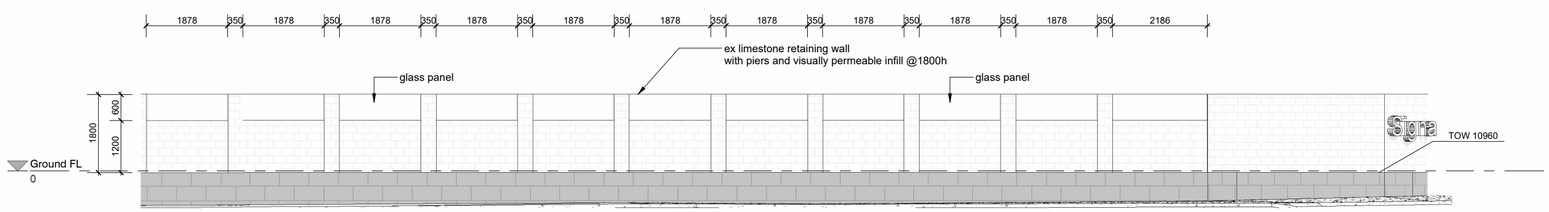
01 Fencing Elevation
1 : 100



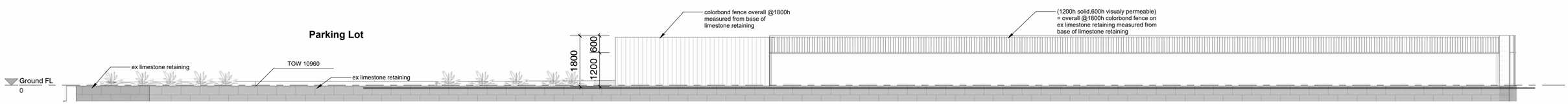
02 Fencing Elevation
1 : 100



Proposed Fence Layout
1 : 200



03 Fencing Elevation
1 : 100



04 Fencing Elevation
1 : 100

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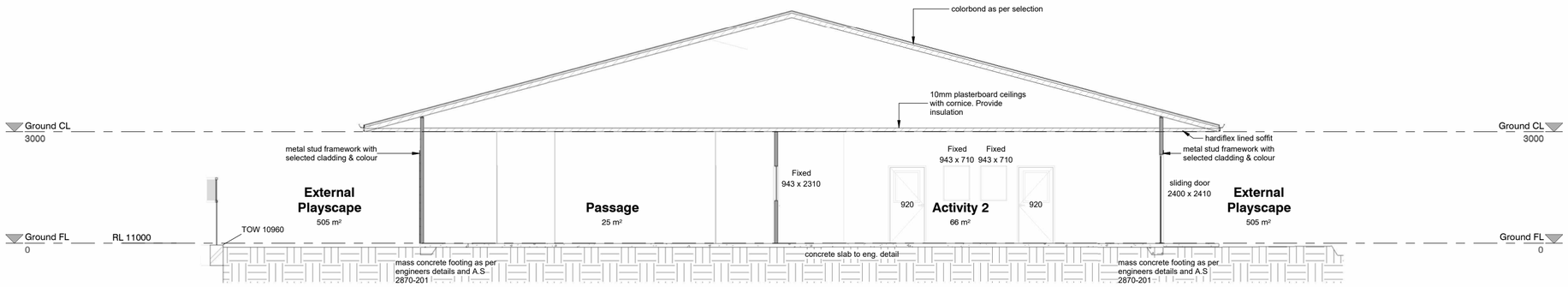
BUILDER _____ DATE _____
CLIENT 1 _____ DATE _____
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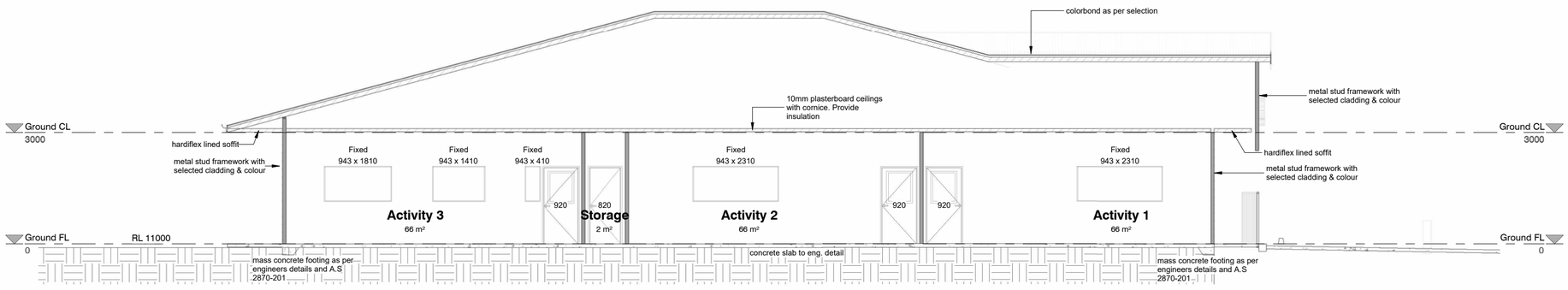
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CLIENT Ravenswood Childcare
ADDRESS Lot 977 Nancarrow Way,Ravenswood
DRAWING Fencing Elevations
PAPER SIZE A2
PROJECT NO. 1609
DRAWN WM
CHECK SV
DATE 02 Dec. '25
PROJECT STAGE PLANNING
SCALE 1:100 (0m – 5m)
DRAWING NO. P301 rev 5



A Section
1 : 100



B Section
1 : 100

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BUILDER _____ DATE _____

CLIENT 1 _____ DATE _____

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CLIENT: Ravenswood Childcare

ADDRESS: Lot 977 Nancarrow Way,Ravenswood

DRAWING: Sections

PROJECT NO: 1609 | DRAWN: WM | CHECK: SV | DATE: 02 Dec. '25

PROJECT STAGE: PLANNING | SCALE: 1:100 (0m — 5m)

PAPER SIZE: A2

DRAWING NO.: P400 rev 4

26 March 2026

File ref: PLAN_72-PSubmission_01

Chief Executive Officer
Shire of Murray
Attention: *Greg Delahunty, Manager – Planning and Environmental Services*
Email: *pandsadmin@murray.wa.gov.au; gregory.delahunty@murray.wa.gov.au*

Dear Sir/Madam

RE: DAP FORM 1 - DEVELOPMENT APPLICATION – PLANNING SUBMISSION
PROPOSED CHILD CARE CENTRE, LOT 977 NANCARROW WAY, RAVENSWOOD

PLAN., in association with *IQ Premium Homes Pty Ltd (***IQPHPL**), acts as the Applicant on behalf of *Acquwest Investments Pty Ltd* (**Acquwest**), which has entered into a contract to purchase the subject land from *DJM Ravenswood Pty Ltd*, the registered owner.

This planning submission accompanies and supports the *Development Assessment Panel* (**DAP**) Form 1 Application for a Child Care Centre on the vacant Lot 977 Nancarrow Way, Ravenswood (**subject land**).

This Application was lodged under DAP Form 1 with the Shire on 4 March 2026. It is understood that the Shire intends to advertise the proposal from 31 March to 14 April 2026.

This submission provides the planning justification for the Child Care Centre proposal, demonstrating consistency with the relevant planning framework and addressing land use, design, access and parking, amenity and community benefit considerations.

LOT PARTICULARS AND LOCAL CONTEXT

The subject land is Lot 977 Nancarrow Way, Ravenswood, created as part of the Ravenswood Green residential estate. It is described on Certificate of Title Volume 2932, Folio 546 as Lot 977 on Deposited Plan 411195, with a total area of 1619m^2.

The land addresses the southeastern corner of the roundabout-controlled intersection of Jolly Rambler Boulevard and Nancarrow Way. The street and boundary interfaces include:

Primary frontage:	24.84 metres to Nancarrow Way (southeast).
secondary frontage:	37.93 metres to Jolly Rambler Boulevard (northeast).
Rear boundary:	25.20 metres to Jones Lane (northwest).
Side boundary:	45.51 metres to POS Reserve 52545 (southwest).

The land is currently vacant and bounded by a constructed road network. its physical characteristics of the land are illustrated below at **FIGURE 1**.



FIGURE 1: **Location Plan** *(source: Landgate 2026)*

Land to the north of Jones Lane is identified for ceding to the Crown to facilitate the development of the Ravenswood Primary School site, which is to be transferred to the *Department of Education* (**DoEd**) through the formal acquisition process. The immediate locality has experienced substantial residential growth in recent years within the school catchment area of the DoEd. With Ravenswood Green largely built out and the adjoining residential estates being substantially progressed and further developing in the short term.

The demand for convenient, locally accessible child care services to support the residential community is increasing in this location. The site's corner exposure, multiple frontages, separation from nearby dwellings by roads and public open space, and its direct outlook to the future primary school collectively make it well suited for this child care centre. The lot size and configuration readily accommodates an appropriately designed centre, which provides a high quality and respectful response to access, parking, urban design and amenity considerations.

SUMMARY OF DEVELOPMENT PROPOSAL

Pre-lodgement process

The design has undergone a detailed pre-lodgement process with the Shire, including submission of an initial set of drawings for review and preliminary feedback.

As part of this preliminary review process, detailed discussions were held with the Shire in regard to the design of the building and the need to address the bushfire management requirements. These discussions included the Applicant, Acquwest and Bushfire Prone Planning and resulted in a preliminary agreement being reached on the design layout and required setbacks.

The plans were subsequently refined in response to the Shire's requests and the formal Application has been lodged together with the supporting technical documentation.

Submitted drawings, prepared by IQ Construction, include:

1. Contour and features Survey prepared by Cottage Surveys
2. Existing and Proposed Site Plan
3. Parking Layout Plan
4. Landscaping Plan
5. Stormwater Plan
6. Floor Plan
7. Elevations
8. Fencing Elevations
9. Sections

Supporting technical documentation

The submitted drawings are supported the following suite of **technical documentation**:

1. Traffic Impact Statement, Transcore
2. Bushfire Management Plan and Bushfire Emergency Plan, Bushfire Prone Planning
3. Sustainable Design Report, Greenhive Eco
4. Environmental Acoustic Assessment, Herring Storer Acoustics
5. Stormwater Drainage Design, SJR Civil Consulting Pty Ltd
6. Site Classification Report, Lalli Consulting Engineers
7. Retaining Wall Inspection, Lalli Consulting Engineers

Summary of the development proposal:

1. The centre proposes a building footprint of 490m^2, an external playscape area of 505m^2, a bin store and dry Lane area of 30m^2, and additional landscaping areas.

2. The centre is designed to accommodate a total of 72 children and 11 staff members.

3. The hours of operation are Monday to Friday between 6:30am to 6:30pm. The outdoor playspace is to be restricted from use until 7:00am to comply with the Environmental Acoustic Assessment.

4. The single storey design responds to the surrounding streetscape and residential context.

5. The building is designed with substantial setbacks to both Nancarrow Way and Jolly Rambler Boulevard to ensure the development appropriately responds to the residential dwellings on the opposite sides of these local roads.

6. The articulated main entry and varied pitched roof form provides a clear visual indicator leading to the main glazed entrance doors and reception area.

7. Street activation is achieved along all frontages while maintaining child safety and privacy through a coordinated built form and fencing design response. The building and fencing

interfaces appropriately address the adjoining public open space, the residential dwelling frontages to Jolly Rambler Boulevard and Nancarrow Way, and the future school site to the north of Jones Lane.

8. Landscaping includes the planting of medium height trees are provided along the northwestern frontage to Jones Lane to assist in softening and providing shade over the parking area.

9. The parking layout plan proposes a total of 18 car bays with a designated reversing bay area. The bays are allocated for visitor and staff use. The number of car bays, vehicle access and overall design of the car park is supported by the Traffic Impact Statement.

10. Vehicle access to the parking area is provided at Jolly Rambler Boulevard to minimise conflicts with the other frontages.

11. The main entrance is orientated northwest towards Jones Lane and the parking area, with a clearly defined pedestrian pathway extending across the building length and connecting to the existing footpath on Jolly Rambler Boulevard.

Internal layout and operations

12. The design provides a legible, robust layout with a main entrance, reception, and a central corridor to all activity rooms, each with direct access to the external playspace.

13. The internal spaces are configured to meet the national child care regulatory requirements for age groupings and room areas:

Activity Rooms 1 and 2:	40 children within the 3-5 age group across two (2) rooms of equal sized 66m^2 floor space, with connecting toilet facilities (14m^2) and shared preparation (7m^2) and storage (2m^2) spaces.
Activity Room 3:	20 children within the 2-3 age group within one (1) room of 66m^2 floor space, with adjoining spaces designed for toilets (11m^2), and preparation (7m^2) and storage room (4m^2).
Activity Room 4:	12 children within the 0-2 age group within one room of 66m^2 floor space, with adjoining spaces for the cot room of 12m^2, changing room of 11m^2, and preparation room of 7m^2.

14. The remaining internal area accommodates the kitchen, staff amenities and storage, supporting efficient daily operations.

Servicing and waste:

15. The bin store is screened from public view and provides secure internal access for staff during the day. External access to this bin store is also provided directly to and from the

car park to enable the bins to be delivered and returned to the designated bin pad on Jolly Rambler Boulevard for weekly collection using the pathway designed along the length of the building to connect to the existing footpath.

16. All other services will access the parking area for delivery and collection purposes.

Safety, privacy and interface:

17. The fencing elevations and floor plans demonstrate high levels of security and privacy for the children while maintaining passive surveillance and an active relationship to the frontages, through glazing, articulation and design.

STATE AND LOCAL PLANNING FRAMEWORK

The land is zoned 'Urban' in the *Metropolitan Region Scheme* and 'Special Development' in the Shire's *Local Planning Scheme No. 4* (**LPS 4**).

The submitted package includes a presentation document which provides responses to each of the 10 design principles of the WAPC *State Planning Policy 7.0 – Design of the Built Environment*. The following **TABLE 1** provides additional planning responses to those submitted to address each design principle.

TABLE 1: COMPLIANCE WITH DESIGN PRINCIPLES OF SPP 7.0

1. Context and character *Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.*	The single-storey building with significant setbacks to the primary and secondary street frontages and an articulated pitched roof reflects the urban character of Ravenswood Green whilst ensuring a suitable frontage towards Jones Lane and the future school site. The child care centre presents active, landscaped frontages to Nancarrow Way, Jolly Rambler Boulevard, and Jones Lane, and appropriately responds to the adjoining public open space. The corner siting and entrance façade provide an appropriate and complementary local service to the community, in connection with the future primary school, existing public open space and adjacent Ravenswood Community Centre, whilst maintaining a respectful domestic scale and utilising building materials to retain consistency with the residential locality.
2. Landscape quality *Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.*	The landscape strategy involves tree planting around the periphery of the land to soften the built form, provide shade for the parking area, and to improve overall amenity by filtering views of the parked vehicles from Jones Lane. The tree planting and soft landscaping is to extend to the playscape areas, which is to be designed in coordination with the overall nature based play area at Building Permit Application stage. The planting shown in the Landscape Plan and that to be designed for the play space area is to be water-wise, with the species selected for durability, shade, and low allergen potential.

TABLE 1: COMPLIANCE WITH DESIGN PRINCIPLES OF SPP 7.0	
3. Built form and scale *Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.*	The massing is broken into residentially scaled components with clear entry articulation and roof form variation to reduce bulk. The single-storey height is compatible with surrounding dwellings and the community centre and provides a sensitive transition to the future school site. Street setbacks and building orientation reinforce the established pattern of development and maintain sightlines at the roundabout. No adverse overshadowing or overlooking impact arises due to height, separation by roads, and fencing design.
4. Functionality and build quality *Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life-cycle.*	The design provides a legible layout with a central corridor, direct connections from each activity room to amenities and the external playspace area, and a prominent, weather-protected main entry oriented to the car park. 18 on-site bays with a reversing bay area are provided to support staff parking needs and an efficient pick-up/drop-off management system. The back-of-house functions (kitchen, staff amenities, storage, bin store) are logically arranged for safe operations.
5. Sustainability *Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.*	The Sustainable Design Report outlines passive design measures (orientation, shading, daylighting, cross-ventilation) and efficient services/fixtures to reduce operational energy and water demand. Roof forms and generous eaves assist in heat reduction; materials are durable and low-maintenance. The Stormwater Layout provides for on-site management of local rainfall conditions. Provision is made for future solar PV readiness and bicycle parking for staff.
6. Amenity *Good design provides successful places that offer a variety of uses and activities while optimising internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.*	Internal amenity is optimised through access to sunlight, outlook, cross-ventilation, and direct playspace access from each room. The Environmental Acoustic Assessment confirms compliance with the Regulations based on the opening hours being within the day time period, noting that the outdoor playspace and staff car bays 10 and 11 are to be restricted from use before 7:00 am. This assessment further confirms compliance for the visually permeable fencing treatments and the location of the mechanical plant within the dry court and bin store space, which is considered appropriate to manage noise at nearby receivers. External amenity is enhanced by offering increased opportunities for passive surveillance, pedestrian paths and additional planting of mature trees. The single storey height and selection of building materials minimises visual impact and preserves neighbourhood amenity.

TABLE 1: COMPLIANCE WITH DESIGN PRINCIPLES OF SPP 7.0	
7. Legibility *Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.*	The building addresses the street frontages at the corner of the lot, improving visibility from multiple approaches, while fencing maintains a suitable level of passive surveillance without compromising safety. Wayfinding is reinforced by glazing, a pedestrian path, an entry canopy, signage, and landscape cues. The entrance is clear and intuitive, with a direct pedestrian path leading from the car park to the visually prominent, sheltered main entrance glazed doors leading to the reception desk.
8. Safety *Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.*	CPTED principles have informed the layout, with active frontages providing passive surveillance; sightlines at the corner being protected; entries and paths having clear definition. The site is bound by streets reducing issues created by blind interfaces. The fencing elevations provide secure perimeters, child-safe gates, and controlled access points. Parking and pedestrian movements are separated by a defined walkway. Vehicular access is limited to Jolly Rambler Boulevard to minimise traffic movement conflicts. Bushfire risk is addressed through the Bushfire Management Plan and a Bushfire Emergency Plan, including a defined asset protection zone (APZ) and building construction requirements.
9. Community *Good design responds to local community needs as well as the wider social context, providing environments that support a diverse range of people and facilitate social interaction.*	The centre responds to local demand from a rapidly growing residential catchment and is strategically located opposite the future primary school, public open space and the community centre. It provides opportunities for local employment, supports workforce participation for families, and offers an inclusive service designed to accommodate a range of ages, with pram-friendly access and equitable facilities.
10. Aesthetics *Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.*	A high-quality colour palette comprising of neutral colour tones and textures and durable cladding to create a welcoming, residential scaled centre. The roof articulation, entrance canopy, generous eaves, and landscaping create depth and visual interest to all three (3) street frontages. The design successfully balances the need to visually articulate the presence of the local child care service at this corner intersection whilst ensuring it is residential in character to suit the neighbourhood and the use.

STATE PLANNING POLICIES

State Planning Policy 2.9 – Water

The land is subject to SPP 2.9, being within the Peel-Harvey Coastal Catchment, with drainage towards and within other estuary catchments on the Swan Coastal Plains. The land forms part of the Ravenswood Green residential estate where subdivision has proceeded under an approved *Local Water Management Strategy* and a comprehensive *Urban Water Management Plan*. These documents establish the stormwater, groundwater and water quality objectives across the wider area to ensure development does not adversely impact receiving environments.

This proposed development incorporates an integrated water-sensitive urban design approach comprising of on-site retention and infiltration via a series of soakwells within the car park, landscape infiltration areas to provide for quality water treatments, hydraulic capacity to meet the design criteria for frequent and major storm events, and will involve operational management to ensure ongoing performance.

In combination with the approved estate water management framework, the proposed measures illustrated on the Stormwater Layout Plan satisfy the SPP 2.9 performance outcomes for stormwater quality and quantity, with the development not expected to adversely impact downstream estuarine environments.

State Planning Policy 3.7 – Bushfire

The land is identified as bushfire prone in the Bushfire Prone Mapping prepared by *Department of Fire and Emergency Services* (**DFES**).

As the proposed child care centre is classified as a vulnerable land use under SPP 3.7, a *Bushfire Management Plan* (**BMP**) and *Bushfire Emergency Plan* (**BEP**) have been prepared and submitted to the Shire as part of this Application. It is understood that the proposal has been referred to DFES for comment.

The development layout and setbacks achieve compliance at the BAL 29 rating, with building construction to meet the relevant AS 3959 requirements. An Asset Protection Zone is also identified in the BMP to the dimensions and standards specified in SPP 3.7 and ongoing maintenance responsibilities defined. In addition, two way vehicle access to the site and reticulated water hydrants are provided, as required.

The BEP sets out the triggers for early evacuation, the roles and responsibilities, communication requirements, and staff training, which are specifically tailored to respond to the child care centre use.

These measures as set out in the submitted documents were discussed and agreed with the Shire during the pre-lodgement process and achieve compliance under SPP 3.7.

LOCAL PLANNING SCHEME NO. 4 (LPS 4)

The land use is specifically defined as 'Child Care Premises' in LPS 4. At Table I – Zoning Table of LPS 4, a 'Child Care Premises' is identified as a discretionary ('AA') use within the applicable 'Special Development' zone in LPS 4. Accordingly, the proposal is able to be approved where it satisfies the objectives of the 'Special Development' zone and relevant state and local planning policies.

Special Development Zone – Objectives and Structure Plan

The objectives of this zone are described at clause 6.8 of LPS 4 as requiring subdivision and development to comply 'in principle' with an endorsed *Outline Development Plan/Local Structure Plan* (**ODP/LSP**) Map and any relevant special provisions detailed at *Schedule 7 – Special Development Zone* of LPS 4.

The WAPC endorsed *Ravenswood East ODP/LSP Map* identifies the land as suitable for 'Local Centre' development. There are no relevant special provisions relating to the subject land in relation to its land use or development.

'Local Centre' is not a defined land use classification under LPS 4. It is a land use classification however which indicates an intent for local, community serving activities. A 'Child Care Premises' is a local centre compatible use as it is a local convenience community based service. Having regard for the LPS 4 as the statutory instrument and the ODP/LSP Map as a guiding document, the proposed 'Child Care Premises' on this land is considered a suitable and discretionary land use capable of approval in the 'Special Development' zone.

LOCAL PLANNING POLICIES

The development is designed to accord with the following Local Planning Policies:

LPP General Development Provisions, Building Setbacks, Car Parking Standards (2018)

This LPP refers to the proposed use as a 'Day Care Centre' and identifies the following minimum standards.

Table 2 – Building Setbacks:

Min. setback to the street (Nancarrow Way and Jolly Rambler Boulevard): 7.5 metres

This setback applies to Jolly Rambler Boulevard and Nancarrow Way, and is considered to also be a relevant consideration for Jones Lane. Although, technically Nancarrow Way is the primary frontage, Jolly Rambler Boulevard is the secondary frontage, the POS is the side boundary, and Jones Lane is the rear boundary.

The southeastern corner of the building is setback 7.892 metres and 7.380 metres at its interface to the roundabout intersection of Jolly Rambler Boulevard and Nancarrow Way. The average of the corner setback of the building is 7.636 metres.

The building has a varied setback to Nancarrow Way from the south eastern corner to the south western corner ranges from 7.38m to 6.77m. The building setback is similarly varied along the

Jolly Rambler Boulevard frontage ranging from the south eastern corner of the building with its setback of 7.89m to 5.78m at its northern eastern most corner adjacent to the pedestrian and vehicle entrance to the land.

These building street setbacks to the primary and secondary frontages have been considered by the Shire during the pre-lodgement process and it is understood that the varied setback approach is supported given it is more than sufficient to address this requirement and is site-responsive and respectful to the location.

Min. setback to the side boundary (POS): 3.0 metres

The southern side boundary setback to the public open space reserve ranges between 4.76m and 6.0m, which is more than sufficient to satisfy this minimum side boundary setback requirement and is consistent with the requirements of the Bushfire Management Plan.

Min. setback to the rear setback (Jones Lane): 7.5m

The building is setback 18.3m to the rear boundary to Jones Lane accommodating the parking area, boundary landscaping, and the main entrance to the building, which is more than sufficient to satisfy the rear boundary setback requirement.

Table 3 - Car Parking Requirements

Day Care Centre - 2 plus 1 per staff member.

The proposed centre will employ 11 staff, which suggests that a total of 13 car bays are required. A total of 18 car bays and 4 bike racks are provided in the proposed car park, which is more than sufficient to meet this requirement. A different and higher parking ratio requirement is provided in the Shire's LPP - Child Care Services, which is considered below.

LPP Child Care Services (April 2022)

The proposed child care centre is generally compliant with the overarching objectives and locational and design requirements as described in the LPP. Planning responses to each of the LPP requirements is provided below.

4.1 Location

(i.) within or within convenient walking distance (400m/5 minutes) of commercial, recreation or community nodes and education facilities (e.g. local parks and playground facilities, schools and kindergartens, etc.).

The child care centre is located adjacent to public open space and the Ravenswood Community Centre, and opposite the future primary school to be developed to the north of Jones Lane.

(ii) areas where adjoining uses are compatible with a Child Day Care Centre (considering all permissible uses under the zoning of adjoining properties).

The centre is compatible with the established residential, public open space reserve, community centre, and adjoining future primary school site uses of the Special Development zone and aligns with the principles of the endorsed ODP/LSP Map.

(iii.) serviced by public transport.

The residential area is serviced by public transport with the Transperth bus services (600 and 605) running along Nancarrow Way with the nearest bus stop located 500m to the west on Nancarrow Way.

(iv.) considered suitable from a traffic engineering/safety perspective.

The Traffic Impact Statement confirms the suitability of the land, development and vehicle access arrangement for the child care service.

(v.) of sufficient size and dimension to accommodate the development without unreasonably affecting the amenity of the area.

The land is of sufficient size and dimensions and ideally positioned for the provision of the child care service.

4.2 Site Characteristics

The child care centre meets the site characteristics as described at cl. 4.2 of the LPP and referenced below.

(i.) Sites selected for Child Day Care Centres should be of sufficient size and suitable shape to accommodate the development, including all buildings and structures, parking for staff and parents, outdoor play areas and landscaping.

The lot size and shape is ideally suited for a child care development, with its ability to respond to the multiple lot boundaries and provide a low impact much needed community service for the existing and growing residential population of this locality. The parking, landscaping and playscape areas are designed to comply with the relevant requirements and regulations.

(ii.) Sites in residential areas should have a regular shape, with a sufficient lot size to provide the opportunity for design aimed at minimising the impact on surrounding properties. Desirably a minimum lot area of 1,000m² and effective frontage of 20 metres width would be available.

The land area is greater than 1000m^2, with primary and secondary frontages of 24.84 metres and 37.93 metres respectively, and is appropriately surrounded by road and public open space. This ensures a suitable separation distance between the centre and nearby residential properties to minimise any perceived adverse amenity impact.

4.3 Design

(a) Building Appearance

(i.) The visual appearance of the development should reflect the character of the area, enhance its amenity with a welcoming and inviting appearance from the street.

The visual aesthetics of the built form sensitively responds to the established single storey residential character of the location and ensures the building addresses all street frontages to welcome and invite the community to utilise the service, whilst ensuring the safety of the children.

(ii.) The development should be designed having regard to any adopted design guidelines, built form/streetscape policies or other development requirements applicable to the site under the planning framework.

The development is designed to ensure compliance with the relevant planning framework, as demonstrated through this submission.

(iii.) Development within or adjacent to residential areas should reflect a residential appearance, character and proportions of the local area. Particular regard should be given to roof form and style, external colours, finishes and materials and orientation of building openings, that is sympathetic to surrounding development.

The development incorporates residentially scaled components with a clear entry and roof form variation to reduce bulk. The single-storey height is compatible with surrounding dwellings and the nearby community centre and will provide for a sensitive transition to the future school site. Street setbacks, building orientation, and neutral external colour tones and choice of durable building materials ensures that the development is respectful and compatible with the surrounding environs.

(iv.) In commercial areas, parking should be sleeved behind buildings away from the street and public view. Front doors and entries are to be designed to be legible and accessible from the street.

The centre is not proposed within a commercial area. This requirement is therefore not applicable.

(b) Street Walls and Fencing

(i.) Fencing and walls visible from the street should be suitably designed to provide appropriate access, privacy, safety and security, whilst maintaining adequate levels of passive surveillance (i.e. 'open style' and visually permeable fencing) and have a visually interesting appearance.

The fencing elevations are high quality and visually interesting. The visual permeable fencing was considered by the Shire during the pre-lodgement process and viewed as providing an appropriate

amount of activation between the public and private realms, whilst ensuring the safety of the children.

(ii.) ***Areas of solid walls or screening visible from the street should be of high-quality materials and be articulated/visually interesting. Soft landscaping should also be used to reduce the visual dominance of solid portions of walls or fences and soften their appearance from the street.***

The fencing design includes limestone retaining walls to a height of 1.2m, with piers and alternating sections of solid and visually permeable infill to the street frontages and landscaping along the perimeter of the parking area to Jones Lane. The fencing to the POS is to consist of 1.2m solid boundary Colorbond fencing panels and visually permeable infill panels to a height of 1.8m. The fencing design is considered high quality and visually interesting, as required.

(iii.) ***Front fences to Child Day Care Centres should comply with the residential street fencing requirements of the R-Codes as far as possible and be constructed of appropriate materials that complement the development and respect the amenity of the streetscape and surrounding residential properties.***

The fencing design is compliant with the fencing requirements of the R Codes, providing for visual permeability above 1.2m in height.

(c) Landscaping

(i.) ***Where car parking is provided between the building and street alignment(s) a minimum 1.5-metre-wide landscaping strip to be established and thereafter maintained along the street alignment(s).***

A 1.5m wide landscaping strip including the planting of five (5) mature trees and other plantings is designed along the Jones Lane boundary to soften the visibility of the cars parked in the parking area.

(ii.) ***The development is to be designed to retain and conserve existing mature trees on the site as well as existing Shire verge trees.***

The lot is devoid of trees. This requirement is therefore not applicable to the development proposal.

(iii.) ***Car parking areas to be landscaped and provided with shade trees at a minimum rate of 1 tree per 4 car parking bays.***

The five (5) mature shade trees proposed to be planted along the northern boundary of the parking area meets this requirement.

4.4 Carparking and vehicle access

(a) Onsite Car Parking

Parking is to be provided on site at a rate of one (1) parking bay for each staff member, in addition to the number of children, which is based on the ratio of 55 or more being calculated at a rate of 9 bays plus 1 per 8 children accommodated in excess of 54.

Based on this guiding provision of the LPP, the centre is calculated at requiring a total of 22.25 bays.

The actual parking demand and provision is assessed by Transcore as being less than this requirement. The parking analysis determines the required number of parking bays being 17 bays which is sufficient to meet the actual demand for this use based the NSW *Guide to Traffic Generating Developments*. Transcore concludes that the development should provide 11 bays of staff and 6 bays for pickup/drop to meet parking demand for the use. The analysis further proposes that eight (8) bays could be assigned for drop off/pick up use to ensure a robust parking arrangement for the centre.

The parking design illustrated in the plans adopts the robust management approach proposing a total of 18 bays, with ten (10) car bays designated for staff use and eight (8) bays for parent parking during drop off/pick up times. Approval for the development in accordance with the site-specific analysis presented in the Traffic Impact Statement is respectfully sought.

(b) Traffic Generation

(i.) Development should only be permitted where it does not negatively impact the function or safety of the adjacent roads or cause undue conflict through the generation of traffic or demand for parking.

The Traffic Impact Statement confirms that the traffic increase from the centre would be significantly less than the critical threshold of 100 vehicles per hour and therefore it does not require further assessment.

(ii.) In assessing an application for a new or expanded Child Day Care Centres, in addition to considering matters such as traffic volumes, road capacity and road safety from a technical engineering perspective, the Shire will have also regard to these matters from a residential amenity perspective.

The traffic generated by the child care centre use on this land in the context of its location will not have any impact on the residential amenity of this location. It is proposed on a corner lot on the main distributor road networks of Nancarrow Way and Jolly Rambler Boulevard. This lot has always been identified for a local goods and service activity and the traffic therefore generated by such a use on land which has an appropriate buffer to the residential properties meets with anticipated traffic generated by such a service activity.

4.5 Noise considerations

(a) General Design and Layout Considerations

(i.) Where a Child Day Care Centre is located adjacent to a noise-sensitive use, such as residential dwellings, retirement villages and nursing homes, the noise-generating activities of the centre, such as the outdoor play areas, parking areas and any service areas, plant and equipment, are to be located away from the noise-sensitive use.

The child care centre is supported by an Environmental Acoustic Assessment report which confirms that the predicted noise levels of the use will be compliant with the regulations.

(ii.) Where, due to design limitations or safety considerations, noise-generating activities such as outdoor play areas are located close to noise-sensitive uses, appropriate noise mitigation is to be undertaken.

The Environmental Acoustic Assessment requires the use of the playspace area to be restricted to after 7:00am.

(iii.) The design and construction of buildings may include noise-mitigation measures to reduce impact from external sources and to achieve accepted indoor noise limits.

The design and construction of the building will ensure compliance with the regulations.

(b) Hours of Operation

The hours of operation of a Child Day Care Centre should be limited to between the hours of 7am and 7pm Monday to Saturday, and 9am to 5pm on Sunday, unless otherwise agreed to by the Shire.

The hours of operation are Monday to Friday between 6:30am to 6:30pm. The outdoor playspace will only be utilised from 7:00am, in accordance with the Environmental Noise Assessment, ensuring compliance with the relevant acoustic criteria and minimising any impacts on nearby properties.

The 6:30am opening time is sought to provide operational flexibility for parents and carers, enabling timely drop off of children prior to standard working hours and facilitating arrival at their place of employment without delay.

CONCLUSION

The proposed child care centre is compliant with the objectives and requirements of the planning framework and represents a well-located, sensitively designed community facility that will meet the needs of the existing and growing local population without unreasonably impacting local amenity.

The single storey residentially scaled built form, varied roofscape, neutral materials palette and clear, legible entry ensure a high-quality presentation that is sympathetic to the local character and addresses each street frontage.

The proposal delivers 18 on-site bays (10 staff and 8 parent), satisfying the site-specific demand and providing contingency. The TIS confirms the development will generate traffic volumes well below the 100 vehicles per hour threshold, with safe access and no adverse effects on the local road network or residential amenity.

The proposed operating hours of 6:30 am–6:30 pm Monday to Friday provide important flexibility for working families while maintaining acoustic compliance (no outdoor play before 7:00 am) and minimising potential amenity impacts.

The proposal is compliant with site planning, design, parking and acoustic objectives and will deliver an essential local community service to this residential locality.

Accordingly, we respectfully seek the Shire's support and the approval of DAP with reasonable conditions attached.

We trust that the information is sufficient in detail for staff to continue with their assessment of this Application. However, should staff have any queries regarding the development proposal, the writer is available on 0414 384 972 or clare@planwa.au.

Yours sincerely

Clare McLean
Director

Bushfire Management Plan Coversheet

Site address:	Lot 977 Nancarrow Way Ravenswood						
Site visit / date:	Yes	✓	No		13 January 2026		
Report author or reviewer:	Mike Scott						
Not accredited		Level 1 BAL assessor		Level 2 practitioner		Level 3 practitioner	✓
BPAD accreditation number:	27795	Accreditation expiry – month / year		August		2026	
Bushfire Management Plan - version / date:	V1.0	16 February 2026					

If one or more of the following responses are yes, then these should be automatically referred to DFES.	Yes	No
Strategic planning is required to address SPP 3.7 and the Guidelines		✓
The application is a vulnerable land use	✓	

If one or more of the following responses are yes, and the decision-maker requires input from DFES, then the application can be referred.	Yes	No
The BAL rating has been calculated by a method other than Method 1 as prescribed by AS 3959	✓	
An outcomes-based approach has been submitted to demonstrate compliance with the bushfire protection criteria		✓

Note: If a subdivision or development application meets all the acceptable solutions and does not otherwise trigger a referral as listed above, seeking advice from DFES on SPP 3.7 or other matters is at the discretion of the decision-maker.

The information provided within this bushfire management plan, to the best of my knowledge, is true and correct:

Dated signature of report author or reviewer:		16 February 2026

BUSHFIRE PRONE PLANNING

Ravenswood Childcare Centre

Bushfire Management Plan

(PREPARED FOR PLANNING APPLICATION ASSESSMENT PURPOSES)



Compiled in accordance with State Planning Policy 3.7 Bushfire and the Planning for Bushfire Guidelines

Lot 977 Nancarrow Way Ravenswood

Shire of Murray

Development Application - Vulnerable Land Uses

16 February 2026

Job Reference No: 260023

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LIMITATIONS AND DISCLAIMER

Management of Risks Associated with Bushfire

For the subject planning proposal, the protection measures to be implemented based on information presented in this Bushfire Management Plan, prepared for land-use planning purposes, are the minimum requirements for management of the relevant risks.

The applied protection measures do not guarantee that during a bushfire event, no buildings or infrastructure will be damaged, persons injured, or fatalities occur - either on the subject site or off the site when evacuating.

This is substantially due to the unpredictable nature of fire weather conditions, bushfire behaviour and the actions of landowners and/or operators – including the correct implementation and ongoing maintenance of required and recommended protection measures (including bushfire resistant construction) and complying with public bushfire warnings and directions from emergency services - over which Bushfire Prone Planning has no control.

Provision of Mapping Data

All maps included herein are indicative in nature and are not to be used for accurate calculations. This data has been prepared for bushfire risk management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey.

Bushfire Prone Planning does not guarantee that this data is without flaw of any kind and disclaims all liability for any errors, loss or other consequence arising from relying on any information depicted.

When the separate provision of Digital Geographic Data (GIS Files) is an agreed project deliverable, these should be used in conjunction with the relevant information presented in the associated report. Areas and/or Dimensions specified in the report will have priority over digital data transmitted and must correspond to the final 'as-built' location of the applicable buildings, other structures or boundaries.

***Bushfire Prone Planning's** Liability*

All surveys, forecasts, projections and recommendations made in this report, associated with the subject planning proposal, are made in good faith based on information available to Bushfire Prone Planning at the time.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents, arising out of the services provided by their consultants.

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EXPLANATORY INFORMATION

SITE/USE PLANNING

This BMP is produced to present the information necessary for a planning proposal's assessment against the State's bushfire planning requirements. The developed information is to inform and assist decision-making authorities, planners, landowners/proponents and referral agencies in their implementation WA's State Planning Policy 3.7 Bushfire – and where relevant, any supplementary provisions of a local planning scheme or policy.

Policy Document Versions Applied in This BMP	State Planning Policy 3.7 Bushfire (SPP 3.7)	November 2024	Planning for Bushfire Guidelines (supporting SPP 3.7)	November 2024

> The Stated Intent of SPP 3.7 is to *implement effective, risk based land use planning and development which in the first instance avoids bushfire risk, but where unavoidable, manages and/or mitigates the risk to people, property and infrastructure to an acceptable level. The preservation of life and the management of bushfire impact are paramount.*

SITE OPERATIONS

This BMP is not an 'operational' BMP for property and operations management. Such a BMP would apply additional and more specific bushfire protection measures to more comprehensively reduce the level of risks associated with a bushfire event. These being the potential loss of life, injury, or destroyed or damaged assets which results in personal loss and economic loss.

However, this 'planning' BMP does establish certain responsibilities for the implementation and maintenance of the bushfire protection measures that are considered the minimum for bushfire planning decision making.

BUSHFIRE RESISTENT CONSTRUCTION

This 'planning' BMP is not required to consider the requirement to construct certain buildings, in designated bushfire prone areas, to the standard corresponding to the Bushfire Attack Level (BAL) they are subject to. This requirement is dealt with under the State Building Act 2011/Building Regulations 2012 and the referenced Building Code of Australia.

DETERMINED BUSHFIRE ATTACK LEVEL (BAL) RATINGS AND CONSTRUCTION – CAUTION!

For construction purposes a determined (not indicative) BAL rating is required to be known and a BAL Certificate produced for submission with a building application. This establishes the construction design and materials that are to be complied with in accordance with AS 3959 Construction in bushfire prone areas (as amended) and/or NS 300 NASH Standard Steel Framed Construction in Bushfire Areas (as amended).

This 'planning' BMP cannot necessarily determine a BAL rating that will apply to a future building. All variables required for that calculation may not be known at the assessed stage of planning. For example, actual location of a building footprint on a lot and/or any classified vegetation that will remain, at the time of construction, within the lot or on neighbouring lots.

This 'planning' BMP is only required to identify if a viable sized building can be located on a lot and be subject to a BAL rating not exceeding BAL-29, based on certain allowable assumptions. This is a planning requirement not a building requirement and a BAL contour map can be used to illustrate this information as an 'indicative' BAL rating.

Be aware that typically you cannot derive the determined BAL rating for a future building(s) on a specific lot from a BAL contour map (when presented in a BMP prepared for planning approval purposes). This is only possible in limited circumstances.

Planning assessment requirements are different to building assessment requirements. Refer to explanatory information above and Appendix B1 and B2 for additional information.

1 THE PLANNING PROPOSAL

1.1 Details, Plans and Maps

SUBJECT LAND AND PROPONENT (LANDOWNER)		
Address Details	Lot 977 Nancarrow Way Ravenswood	
Applicable Local Government	Shire of Murray	
Proponent	Michael Abrusci	
Entity Commissioning Production of the BMP	Acquest Investments Pty Ltd	
THE PLANNING PROPOSAL STAGE AND TYPE		
Strategic Planning Document	☐	N/A
Structure Plan	☐	N/A
Subdivision Application	☐	N/A
Development Application	☑	Construction of a habitable building and/or a vulnerable use that is subject to bushfire planning requirements.
DESCRIPTION		
Construction of the Ravenswood Childcare Centre, located between Jolly Rambler Boulevard, Jones Lane and Nancarrow Way. The proposed building is a class 9b childcare building which is identified as one of the types of class 9 buildings subject to the NCC 2022 specification 43 requirements. As a childcare building, the proposal is not currently required to comply with the updated requirements unless as a voluntary measure. Due to offsite vegetation, meeting the NCC vegetation separation distances would not be possible, therefore the vegetation will not be assessed in relation to the NCC requirements, however, the Bushfire Protection Criteria (BPC) relating to "certain class 9 buildings" will be assessed.		
Primary Proposed or Intended Construction		
EXPLANATORY INFORMATION Note: A habitable building is defined in the WA *Planning and Development (LPS) Regulations 2015* to mean: A permanent or temporary structure on land that: (a) Is fully or partially enclosed; and (b) Has at least one wall of solid material and a roof of solid material; and (c) Is used for a purpose that involves the use of the interior of the structure by people for living, working, studying or being entertained.		
Primary Type(s)	New Building(s)	
BCA Classification	Class 9b (assembly building)	

Vulnerable Land Use Determination	
Applying the definition established in SPP 3.7:	
• A land use which is designed to accommodate people who are less physically or mentally able and likely to present evacuation challenges; and/or	☑
• A land use which due to the building design or use, or the number of people accommodated, likely to present evacuation challenges; and/or	☑
• A land use which involves visitors who are unfamiliar with the surroundings.	☐
In applying the Guidelines, Appendix B5 and DPLH officer level advice, consideration is also given to:	
• The location and to the number of employees and visitors on-site at any one time; and	☑
• If the decision-maker considers that the preparation of a bushfire emergency plan is warranted, then the use should be considered vulnerable.	☑
• Grouped dwellings for older persons (e.g. Lifestyle / over 55's) where there is no nursing care component, may not need to be considered a vulnerable use (including when a Class 3 but not a Class 9c building).	☐

Assessment Supporting Details:

The proposed development comprises a childcare centre, which has been assessed against the definition of vulnerable land use under State Planning Policy 3.7 – Planning for Bushfire Risk Management.

In accordance with SPP 3.7, a vulnerable land use includes uses that accommodate occupants who are less physically or mentally able, are likely to present evacuation challenges, and/or involve visitors unfamiliar with the surroundings. Based on this definition, the proposed childcare centre is considered a vulnerable land use for the following reasons:

- The childcare centre is designed to accommodate young children who are not capable of self-evacuation and are reliant on staff for movement and emergency response, which presents significant evacuation challenges during a bushfire event.
- Due to the building design and operational characteristics, including multiple activity rooms, outdoor play areas, and the number of children and staff present at any one time, the use is likely to present complex and time-critical evacuation constraints.
- The development involves parents, guardians, and visitors who are unfamiliar with the site layout and surrounding road network, increasing the potential for confusion or congestion during an emergency.

In applying the Guidelines for Planning in Bushfire Prone Areas, including Appendix B5 and DPLH officer-level advice, the following additional considerations are noted:

- While staff are present on-site during operating hours, the ratio of staff to children and the dependence of children on adult supervision means that evacuation cannot be undertaken rapidly or independently, reinforcing the vulnerability of the use.
- Given the identified evacuation challenges and the vulnerable nature of the occupants, the preparation and implementation of a Bushfire Emergency Plan (BEP) is warranted and required, which further confirms the classification of the childcare centre as a vulnerable land use.
- The development does not fall within any exclusions under the Guidelines (such as grouped dwellings for older persons without a nursing care component) and must therefore be assessed as a vulnerable use.

Development Type - Establishing the Applicable Bushfire Protection Criteria			
Class 9 Vulnerable Use Buildings	Construction, and/or use of, or additions to the certain NCC 2022 Class 9 buildings subject to bushfire construction provisions and considered by the Guidelines to be relevant vulnerable land uses for the purpose of bushfire planning. *[Guidelines s8]*	Class 9a health-care building	☐
		Class 9b early childhood centre and primary or secondary school	☑
		Class 9c residential care building	☐
		Class 10a building or deck within 6 m of the relevant Class 9 building.	☐

Assessment Supporting Details:

The proposed childcare centre, as a Class 9b vulnerable use building, is required to comply with the AS 3959 bushfire construction standards for the site's determined BAL – BAL29. These requirements provide a mandatory level of protection against radiant heat, flame contact, and ember attack, and form an integral component of the outcomes-based bushfire risk mitigation measures where site constraints prevent full compliance with SPP 3.7 Deemed-to-Comply solutions.



Figure 1.1: Proposed site plan.



Figure 1.2: Proposed development map.

Figure 1.3

Location Map

Lot 977 on Plan / Diagram 411195, Area: 1619.53
Nancarrow Way
Ravenswood
Shire of Murray

------ LEGEND ------

- Subject Site
- Cadastral
- 150m Assessment Area
- 100m Assessment Area

0 20 40 60 80100

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Simone Eaton 19-02-2026
SCALE (A3): 1 : 5000

BUSHFIRE PRONE PLANNING

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

1.2 The Planning Proposal and its Requirement to Address Bushfire Risk

EXPLANATORY INFORMATION

For the subject planning proposal, the intent of this section is to:

- Identify the relevant statutory bushfire planning provisions that have established its requirement to address bushfire risk;
- Identify the relevant policy/guideline 'triggers' to apply SPP 3.7 Bushfire;
- Identify when a local government, as the decision maker, has established additional 'triggers' to apply defined bushfire planning assessments; and
- Identify the consideration of any relevant exemptions from application of SPP 3.7 Bushfire.

Relevant Terms

Development means the development or use of any land, including (a) any demolition, erection, construction, alteration of or addition to any building or structure on the land (b) the carrying out on the land of any excavation or other works (Planning and Development Act 2005, Part1, s.4; and

Habitable building means a permanent or temporary structure on land that:

(a) is fully or partially enclosed; and

(b) has at least one wall of solid material and a roof of solid material; and

(c) is used for a purpose that involves the use of the interior of the structure by people for living, working, studying or being entertained;

Specified building means a structure of a kind specified in this Scheme as a kind of structure to which this Part applies in addition to its application to habitable buildings.

Development site means that part of a lot on which a building that is the subject of development stands or is to be constructed - Planning and Development (LPS) Regulations 2015, s.78A.

Construction of a building includes the erection, assembly or placement of a building but does not include the renovation, alteration, extension, improvement or repair of a building;

1.2.1 Applied Statutory Bushfire Provisions Requiring a Planning Application

A PLANNING APPLICATION IS TO BE SUBMITTED TO WAPC FOR DETERMINATION

The proposed development (construction and/or use) is a category for which WAPC is the decision maker rather than the local government.

Determination will be made under the Planning and Development Act 2005, its relevant subsidiary legislation and associated State Planning Policies.

As the subject site is wholly or partly within a designated bushfire prone area (Map of Bushfire Prone Areas), due regard must be given to State Planning Policy 3.7 Bushfire.

A PLANNING APPLICATION IS TO BE SUBMITTED TO THE LOCAL GOVERNMENT FOR DETERMINATION	
For the proposed development (construction and/or use) the local government is the decision maker. The local government determination will be made under: • The Planning and Development Act 2005, its relevant subsidiary legislation (e.g. Regulations) and associated policies that establish the objectives and high-level guidance; and/or • The local government's local planning scheme and associated policies that establishes objectives and guidance, specific to the jurisdiction, in addressing the requirements established by the above legislation and associated policy.	
WHERE PRE-DEVELOPMENT BUSHFIRE ATTACK LEVEL (BAL) OF RELEVANT BUILDINGS IS BAL-40 OR BAL-FZ The Deemed Provisions in Schedule 2 of the Planning and Development (Local Planning Schemes) Regulations 2015, Part 10A – Bushfire risk management, establish: 1. If the proposed development is: (a) The construction or use, or construction and use, of a single house or ancillary dwelling on a lot or lots with a total area of 1,100 m^2 or more; or (b) The construction or use, or construction and use, of (i) a habitable building other than a single house or ancillary dwelling; or (ii) a specified building; and (c) Is not the use of a dwelling as hosted or unhosted short-term rental accommodation (STRA) which is specifically excluded; and 2. The development site is wholly or partly within a designated bushfire prone area (Map of Bushfire Prone Areas), requiring the developer to have prepared a BAL assessment for the development site: then 3. Where the pre-development (before the establishment of an APZ), calculated bushfire attack level of the development site is BAL-40 or BAL-FZ, then the developer must have development approval to commence any development on the development site.	✓
Assessment Supporting Details: None required.	

1.2.2 Applied Triggers to Apply State Planning Policy 3.7 Bushfire

EXPLANATORY INFORMATION

State Planning Policy 3.7 Bushfire (SPP 3.7) provides broad objectives and high-level guidance for how planning proposals and development applications within bushfire prone areas should be considered. Implementation is supported by more detailed instructions within the *Planning for Bushfire Guidelines*.

The following table identifies the guidance that has resulted in the planning proposal being required to apply SPP 3.7.

Inconsistent Information (as of December 2024):

- There are inconsistences between the provisions of the applicable legislation (Planning and Development (LPS) Regulations 2015), the clauses of the associated policy (SPP 3.7 Bushfire) and its associated guidance (Planning for Bushfire Guidelines Nov. 2024).
- This has resulted in inconsistencies in the establishment of the 'triggers' to lodge proposals, plans and applications for planning approval sourced from these documents.

Until legislation/policy/guideline amendments are completed, the advice from WAPC/DPLH is that the decision maker should apply SPP 3.7 and the Guidelines as they deem necessary. *(Source: Explanatory Note SPP 3.7, DPLH, 25/11/24)*

B**ushfire Prone Planning's** Current Approach:

- To apply the 'triggers' for application of SPP 3.7/Guidelines in accordance with the current version of the Guidelines (Planning for Bushfire Guidelines, November 2024), in Sections 6, 7 and 8 - as this is best aligned with the current version (3 Nov 2024) of the LPS Regulations 2015; unless
- The relevant decision maker has determined, and confirmed in writing to the proponent, that SPP 3.7/Guidelines is to be applied.

SPP 3.7 AND THE GUIDELINES - ESTABLISHING THE NEED TO GIVE DUE REGARD TO SPP 3.7		APPLICABLE
1	THE LAND SUBJECT TO THE PLANNING PROPOSAL IS:	
	Designated bushfire prone and 'Area 1 (Urban)' on the Map of Bushfire Prone Areas (refer to Figure 1.4); or	No
	Designated bushfire prone and 'Area 2' on the Map of Bushfire Prone Areas (refer to Figure 1.4).	Yes
AND		
2	THE PLANNING PROPOSAL WILL:	
	Result in the intensification of development (or land use); or	Yes
	Result in an increase of visitors, residents or employees; or	Yes
	Adversely impact or increase the bushfire risk to the subject or surrounding site(s).	No
AND		

3	(Source: SPP 3.7, Part 4) A development application for construction and/or use of a habitable building (other than a single house or ancillary dwelling), for a vulnerable land use and where the development site(s) has a BAL rating above BAL-LOW.	Currently not triggered by legislation - BUT – the relevant decision-maker has established the requirement to apply SPP 3.7
	(Source: Guidelines s.8) This section applies to development applications in areas designated as Area 1 (Urban) or Area 2 on the Map of BPA for the construction and/or use of, or additions to a habitable building for a vulnerable Class 9 building identified within the 2022 edition of the Building Code of Australia (BCA). Note: A development application for additions to a vulnerable land use should address the bushfire protection criteria for the entire site. It should be noted that there are no requirements under SPP 3.7 or the Guidelines to retrofit existing buildings to the appropriate bushfire construction standard, or any requirement for these existing buildings to be located within an area with a radiant heat impact not exceeding 29 kW/m^2 (BAL-29).	

Assessment Supporting Details:

While a legislated trigger under SPP 3.7 does not strictly apply to the proposal, the local government's requirement for a BMP is considered reasonable and appropriate given the vulnerable nature of the childcare centre, the bushfire prone location, and the need to demonstrate that bushfire risk can be acceptably managed. The application of SPP 3.7 in this instance supports informed decision-making and aligns with best-practice bushfire risk management for the following reasons:

- The proposed development is a childcare centre, which is classified as a vulnerable land use under SPP 3.7 due to the presence of young children who are unable to self-evacuate and are reliant on staff assistance during emergencies.
- The subject site is located within a designated Bushfire Prone Area, as shown on the Map of Bushfire Prone Areas, thereby warranting consideration of bushfire risk as part of both planning and building assessment processes.
- The nature of the use, combined with the number of occupants, evacuation complexity, and limited warning times associated with bushfire events, justifies the application of bushfire planning principles to demonstrate that risks can be adequately mitigated.

The submission of a BMP provides clarity and certainty to the proponent and decision-maker by documenting site-specific bushfire risk, mitigation measures, access, water supply, and emergency management arrangements consistent with the intent of SPP 3.7.

1.2.3 Applied Triggers Established by the Local Government as the Decision Maker

EXPLANATORY INFORMATION

The applicable local government is required to give due regard to the following:

The Deemed Provisions in Schedule 2 of the Planning and Development (Local Planning Schemes) Regulations 2015, where:

- Part 2 cl. 3 provides for the local government to prepare a local planning policy; and
- Part 9 cl. 67(q & r) establishes the local government must give due regard to:
  - The suitability of the land for the development taking into account the possible risk of flooding, tidal inundation, subsidence, landslip, bush fire, soil erosion, land degradation or any other risk.
  - The suitability of the land for the development taking into account the possible risk to human health or safety.

Under these general provisions, in addition to the specific statutory bushfire provisions identified in Section 1.2.1, the local government may have bushfire planning policy/information (under the local planning scheme) which is to be addressed in this BMP. This is identified below as relevant.

ESTABLISHING THE NEED TO APPLY LOCAL GOVERNMENT DEFINED BUSHFIRE PLANNING REQUIREMENTS	
Identification of the Relevant Instrument	Local Planning Policy

RELEVANT DETAILS OF LOCAL PLANNING BUSHFIRE POLICY

Planning and development (local planning schemes) Regulations 2015, part 10A – Bushfire Risk Management

Includes deemed provisions that apply to all local planning schemes and are designed to help protect lives and property against bushfire threats by ensuring that development proposals within bushfire prone area demonstrate a Bushfire Attack Level (BAL) of 29 or below.

State Planning Policy 3.7 Planning for Bushfire and Guidelines

Provides support for decision makers in specifying the requirements to address SPP3.7 at each stage of the planning process; assists in determining appropriate land use and development, including construction standards and siting within a designated bushfire prone area; and provides an assessment framework to demonstrate compliance with the bushfire protection criteria.

Shire of Murray Local Planning Scheme No. 4

Aims to protect the health, safety and welfare of residents, manage land uses, protect local natural areas of flora and fauna, protect natural water sources, and provide land for housing employment, community recreation and facilities, amongst others. Special Control Areas that are shown on a scheme map apply in addition to deemed provisions.

RELEVANT DETAILS OF THE LOCAL PLANNING BUSHFIRE INFORMATION

Shire of Murray Bushfire Compliance Notice under s33 of the Bushfires Act 1954

Outlines requirements for the maintenance of firebreaks, removal of flammable materials from land, and trimming trees and bushes that overhand accessways, driveways, buildings and fire breaks.

WAPC Planning Bulletin 111/2016 Planning for Bushfire

Outlines key reforms to help protect lives and property against bushfire, assisting in the interpretation and implementation of local bushfire strategies.

Shire of Murray Bushfire Risk Management Plan

Coordinates community approach to managing bushfire risk.

1.2.4 Identified Exemptions

EXPLANATORY INFORMATION	
The following situations provide for an exemption from the application of SPP 3.7/Guidelines. They are established by the stated sources and are presented below as: • Evidence they have been considered when relevant; and • Justification for the application of SPP 3.7/Guidelines despite a relevant exemption applying to part or all of the planning proposal.	
EXEMPTION SCENARIOS	**APPLICABLE**
(Source: LPS Regulations 2015 Part 10A - Bushfire risk management) Does not apply to land where there is no existing local planning scheme or where a local planning scheme has ceased to have legal effect.	N/A
(Source: Guidelines s1.2.1) For a structure plan or subdivision application, for proposed lot(s) that: • Are not designated as bushfire prone; • Or where there is no increase in the development potential and therefore no intensification of land use or bushfire risk, such as a boundary realignment, that does not restrict the ability to establish or maintain an APZ; and • does not restrict vehicular access to any existing or future habitable building.	N/A
(Source: Guidelines s1.2.1) - For incidental non- habitable buildings or structures located not less than six metres from the habitable building, including but not limited to private garages, carports, patios, storage sheds, outbuildings, swimming pools, spa pools and fences.	N/A
(Source: Guidelines s1.2.1) - For a change of use, minor renovations, extensions, alterations, improvements or repair of an existing habitable building where: • The application does not result in an increase of occupants onsite; and/or • There is no increase in the bushfire risk, such as an extension being further away from the bushfire hazard, or the extension does not restrict vehicular access or the provision of water for the development.	N/A
Assessment Supporting Details: None required.	

Figure 1.4

Bushfire Prone Area

Lot 977 on Plan / Diagram 411195, Area: 1619.53
Nancarrow Way
Ravenswood
Shire of Murray

------ LEGEND ------

- Subject Site
- Cadastral
- Buildings
- Hydrants
- 150m Assessment Area
- 100m Assessment Area

0 20 40 60 80 100

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

N

BUSHFIRE PRONE PLANNING

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Simone Eaton 06-02-2026
SCALE (A3): 1 : 1500

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1.3 Required **'Bushfire Planning'** Assessments and Documents

INFORMATION **PRESENTED IN THIS 'PLANNING' BMP (OR THE BEP)** - PROVIDED TO ACCOMPANY **THE PROPONENT'S** PLANNING SUBMISSION						
The requirements are established by SPP 3.7 Part 4, Guidelines Section 1.2, 4.4, 5.5, 6.4, 7.2, 8.3 and A1.2. The green highlighted column identifies the required information for the subject planning proposal.		Strategic Planning Document		Structure Plan / Subdivision Application		Development Application
Required Information	Details	Map of Bushfire Prone Areas Designation				
		Area 1 (Urban)	Area 2	Area 1 (Urban)	Area 2	Areas 1 & 2
Environment - Identification of environmental, biodiversity or conservation values on subject site(s)	Presented in the BMP. Identifies how proposal siting and design avoids and/or minimises clearing of native vegetation in applying required bushfire protection measures.	BUSHFIRE PLANNING ASSESSMENTS ARE NOT REQUIRED	✓	✓	✓	✓
BLA - Broader Landscape Assessment (see note below)	Presented in the BMP. Considers subject site suitability based on exposure to bushfire hazards, potential for landscape scale bushfire, road network and suitable evacuation destinations.		✓	-	✓	-
BHL - Bushfire Hazard Level Assessment (pre-development)	Presented in the BMP. Can include detail of treatments required to achieve BHL of moderate and/or low.		✓	-	-	-
BAL - Bushfire Attack Level Assessment	Presented in the BMP in BAL contour map format as a requirement and in table format as an additional option.		-	✓	✓	-
	Presented in the BMP in table format and/or BAL contour map format – dependant on which is more efficient and effective at presenting the results (e.g. BAL contour map for multiple buildings).		-	-	-	✓
BPC - Assessment against the relevant Elements (E1 – E4) of the Bushfire Protection Criteria	Presented in the BMP. Strategic planning will necessarily focus on Element 1: Location. Can demonstrate compliance using acceptable solutions and/or an outcomes-based approach.		✓	✓ Excluding E1	✓	✓ Excluding E1
BEP - Bushfire Emergency Plan	For vulnerable land uses only. Provided as a separate document or an addition / modification to an existing BEP or site Emergency Management Plan.		-	-	-	✓
LMP – Landscape Management Plan	For vulnerable land uses only. Provided as a separate document or an addendum to the BMP.					

1.4 Other Documents Relevant to Preparing the BMP

EXPLANATORY INFORMATION

This section identifies any known assessments, reports or plans that have been conducted and prepared previously, or are being prepared concurrently, and are relevant to the subject planning proposal.

They may have implications for the assessment of bushfire hazard threats and the identification and implementation of the bushfire protection measures that are established by this BMP.

RELEVANT DOCUMENTS

Document	Relevant	Exists	To Be Concurrently Developed	Copy Provided by Proponent / Developer	Title
Structure Plan	Yes	Yes	N/A	No	Ravenswood West Local Structure Plan
Implications for the BMP: Structure plans are relevant because they define future road layouts and access networks that influence emergency evacuation routes and emergency service access in the BMP; and outline public open space and conservation area locations which can influence bushfire hazard interfaces and fuel treatments.					
Bushfire Management Plan	N/A	No	N/A	N/A	Being prepared
Preliminary bushfire advice (may include a BAL contour map)	Yes	Yes	No	No	Bushfire impact advice provided by letter 14/1/26.
Implications for the BMP: The BMP must define site-specific setbacks from the lot boundary or classified vegetation required to achieve BAL-29. Multiple modelling scenarios (1–4) provide options ranging from 13.5 m down to 4 m, depending on assumptions and vegetation treatment. The relevant section of the Bushfire Impact Advice is provided as Addendum 1. Also refer to Figure 3.2.					
Bushfire Emergency Plan	N/A	No	Yes	N/A	Being prepared with the BMP
Implications for the BMP: The preparation of a Bushfire Emergency Plan materially strengthens the Bushfire Management Plan by addressing operational response, evacuation and sheltering considerations that cannot be resolved through design measures alone. The BEP enables a more comprehensive assessment of residual bushfire risk and supports the application of an outcomes-based approach under SPP 3.7, particularly for vulnerable land uses and sites where full compliance with acceptable solutions is not achievable.					
Bushfire Risk Report	Yes	Yes	N/A	No	Shire of Murray, Bushfire Risk Management Plan 2021-2026
Implications for the BMP: The Shire of Murray's Bushfire Risk Management Plan provides the strategic and operational context that should inform and under-pin a development-level BMP. While the BRM Plan does not replace the technical bushfire protection criteria of SPP 3.7 and the Guidelines, it ensures that the development's bushfire mitigation measures fit cohesively within the broader community risk management framework and support coordinated, long-term bushfire risk reduction across the local government area.					

Environmental Asset or Vegetation Survey	Yes	Yes	N/A	No	Local Biodiversity Strategy and Environmental Sustainability Strategy 2024 – 2025
The Shire of Murray Local Biodiversity Strategy and Environmental Sustainability Strategy 2024–2025 requires that bushfire risk management measures be carefully balanced against the protection of native vegetation, wetlands and ecological values. Accordingly, the Bushfire Management Plan adopts a targeted, outcomes-based approach that minimises vegetation clearing, relies on long-term management of low-threat vegetation, and prioritises siting, design and construction measures to achieve acceptable bushfire safety outcomes while remaining consistent with the Shire's environmental and sustainability objectives.					
Landscape Management Plan	Yes	Yes	No	Yes	Landscape plan for subject lot
A Landscape Management Plan underpins the effectiveness of the Bushfire Management Plan by translating vegetation-based bushfire protection measures into enforceable, long-term management actions. Where vegetation modification and fuel management are relied upon to achieve acceptable bushfire outcomes, the LMP is essential to demonstrate ongoing compliance with SPP 3.7 and to ensure residual bushfire risk remains tolerable over the life of the development. Addendum 3.					
Revegetation Plan	No	N/A	N/A	N/A	-
There is no revegetation required.					

2 ENVIRONMENTAL CONSIDERATIONS – NATIVE VEGETATION

EXPLANATORY INFORMATION

Some bushfire prone areas also have high biodiversity values. SPP3.7 objective 5.4 prioritises the retention of native vegetation for biodiversity conservation, environmental protection and landscape amenity.

Clearing or modification of native vegetation for the purpose of land use or development is assessed under State Planning Policy 2: Environment (SPP 2), State Planning Policy 2.8: Bushland policy for the Perth Metropolitan Region (SPP 2.8) and relevant environmental legislation. A key objective of these polices is to avoid development that may result in unacceptable environmental damage.

Any 'modification' or 'clearing' of vegetation to reduce bushfire risk is considered 'clearing' under the *Environmental Protection Act 1986* (EP Act) and requires a clearing permit under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations) – unless for an exempt purpose.

Clearing native vegetation is an offence, unless done under a clearing permit or the clearing is for an exempt purpose. Exemptions are contained in the EP Act or are prescribed in the Clearing Regulations (note: these exemptions do not apply in environmentally sensitive areas).

The *Department of Water and Environmental Regulation* (DWER) is responsible for issuing 'clearing' permits and the framework for the regulation of clearing. Approvals under other legislation, from other agencies, may also be required, dependent on the type of flora or fauna present.

Local Planning Policy or Local Biodiversity Strategy: Natural areas that are not protected by the above Act and Regulation (or any other National or State Acts) may be protected by a local planning policy or local biodiversity strategy. Permission from the local government will be required for any modification or removal of native vegetation in these Local Natural Areas (LNA's). Refer to the relevant local government for detail.

For further Information refer to Native vegetation clearing permits | Western Australian Government, the Planning for Bushfire Guidelines (as amended) and the Bushfire and Vegetation Factsheet - WAPC, Dec 2021.

2.1 Biodiversity or Conservation Values Identified

EXPLANATORY INFORMATION

The required information, relevant to bushfire planning and informing the production of this BMP, is sourced and presented as indicated below.

Note that where a 'desktop' assessment has been conducted, this should not be considered a replacement for a full Environmental Impact Assessment. It is a summary of potential biodiversity or conservation values at the subject site, inferred from information contained in public available datasets and/or reports, which are only current to the date of last modification.

The information provided in the BMP should be considered indicative where the subject site has not previously been subject to a site-specific environmental assessment by an appropriate professional.

The required information is sourced from the environmental/planning consultant report developed for the subject site and provided to the bushfire consultant (details below when applicable). The information it contains is not repeated in this BMP as it will accompany the planning submission. The implications for the subject planning proposal and this BMP are stated below when relevant.	No Report Available / Provided
Not applicable.	
The required information is sourced by the bushfire consultant as a 'desktop' assessment from publicly available data bases and/or a local government's local biodiversity strategy or local planning strategy. When applicable, this information is presented on the following pages of this BMP.	Yes - Fully

IDENTIFICATION OF RELEVANT BIODIVERSITY OR CONSERVATION VALUES							
Dataset	Relevant to Subject Planning Proposal	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Information Source(s) Applied				Further Action Required by Proponent
			WA Govt. Agency Dataset (ID)		Landowner or Developer Statements	Environmental Asset or Vegetation Survey Report	
Department of Biodiversity, Conservation and Attractions (DBCA) Datasets							
Conservation Category Wetlands and Buffer (geomorphic wetlands – relevant area)	N/A	Unlikely	☒	DBCA-018, 019	☐	☐	Confirm with relevant agency
RAMSAR Sites (wetlands of international importance)	N/A	No	☒	DBCA-010	☐	☐	None
Threatened and Priority Flora	N/A	No	Restricted Scale of Data Available (security)	DBCA-036	☐	☐	None
Threatened Ecological Communities	N/A	No		DBCA-038	☐	☐	None
Legislated Lands and Waters (national/conservation parks, nature/crown reserves, state forest)	N/A	No	☒	DBCA-011	☐	☐	None
Department of Planning, Lands and Heritage (DPLH) Datasets							
Bush Forever Areas 2000	N/A	No	☒	DPLH-019, 022 and MRS Bush Forever	☐	☐	None
Department of Water and Environmental Resources (DWER) Datasets							
Clearing Regulations – Environmentally Sensitive Areas	N/A	No	☒	DWER-046	☐	☐	None
Swan Bioplan Regionally Significant Natural Areas 2010	N/A	No	☒	DWER-070	☐	☐	None

ADDITIONAL INFORMATION

Palusplain wetlands are typically seasonally inundated, low-lying wetlands with high ecological and hydrological significance, and often fall under Conservation Category Wetland (CCW) or Local Natural Area (LNA) protections, however, conservation is not indicated within council mapping services or other documentation for the subject site.

2.2 Vegetation Management Plans with Implications for the BMP

EXPLANATORY INFORMATION

This section identifies the area(s) of land (supporting vegetation), within or near the subject site (i.e. onsite or offsite) to which one or more of the following scenarios and their corresponding management actions applies.

If none of these scenarios is relevant to the subject planning proposal, this is stated.

1. Area(s) subject to a LANDSCAPE PLAN THAT RESULTS IN RELEVANT ELEMENTS AT RISK BEING EXPOSED TO A LOW BUSHFIRE THREAT LEVEL from existing or planned area(s) of vegetation and establishes the following management actions:

    (a) To apply landscaping design (including the modification and/or establishment of plants/shrubs/trees), that will enable the area(s) to be excluded from classification under AS 3959 BAL determination methodology;

    (b) To actively manage the area(s) to maintain the low bushfire threat level in perpetuity. Thereby ensuring the applicable bushfire protection measures, applied in accordance with the BMP, remain effective;

    (c) To achieve and maintain the low threat state through using a combination of mechanisms including:

        (i) Minimising vegetation fuel loads through design and ongoing management;

        (ii) Using low flammability and/or higher moisture content species;

        (iii) Incorporating non-vegetated elements; and

    (d) To identify the entity responsible for ensuring the landscape plan is complied with in perpetuity and when required, will contain written confirmation of their acceptance of the responsibility.

2. Area(s) subject to a LANDSCAPE PLAN THAT RESULTS IN RELEVANT ELEMENTS AT RISK BEING EXPOSED TO A REDUCED BUSHFIRE THREAT LEVEL from existing or planned area(s) of vegetation and establishes the following management actions:

    (a) To apply landscaping design involving the removal and/or modification of existing vegetation that will enable the area(s) to be classified as a lower threat class under AS 3959:2018 BAL determination methodology;

    (b) To actively manage the area(s) to maintain the reduced bushfire threat level in perpetuity. Thereby ensuring the applicable bushfire protection measures, applied in accordance with the BMP, remain effective;

    (c) To identify the entity responsible for ensuring the landscape plan is complied with in perpetuity and when required, will contain written confirmation of their acceptance of the responsibility.

3. Area(s) subject to a REVEGETATION PLAN THAT MAY RESULT IN RELEVANT ELEMENTS AT RISK BEING EXPOSED TO AN ADDITIONAL BUSHFIRE HAZARD AND/OR AN INCREASED BUSHFIRE THREAT LEVEL from an existing area(s) of vegetation and establishes the following information:

    (a) The location of the areas to be revegetated (as distinct from natural regeneration which is accounted for in the vegetation classification under AS 3959 BAL determination methodology); and

    (b) A description of the planned design regarding density and species of plants/shrubs/trees to inform the bushfire consultant's classification of the vegetation under AS 3959:2018 BAL determination methodology.

Relevance of the Stated Scenarios to the Subject Planning Proposal	Only Scenario 1 is relevant.

2.2.1 Landscape Management Plan – Reduced Bushfire Threat Level

<table>
<tr><th colspan="5">PLANNED LANDSCAPING – REDUCED BUSHFIRE THREAT LEVEL</th></tr>
<tr><th colspan="4">Assessment Details</th><th>Relevant</th></tr>
<tr><td colspan="4">The area of land that is to be subject to a Landscape Management Plan is within the subject site (onsite).</td><td>No</td></tr>
<tr><td colspan="4">The area of land that is to be subject to a Landscape Management Plan is outside the subject site (offsite).</td><td>Yes</td></tr>
<tr><td colspan="4">The landscape plan is recommended as a bushfire protection measure by the bushfire consultant for the reasons identified in the ‘Additional Bushfire Protection Measures of this BMP.</td><td>Yes</td></tr>
<tr><td colspan="4">The area of land subject to the landscape management plan will have its classification under AS 3959 (as amended) BAL determination methodology changed to a lower threat classification than that which currently applies.</td><td>Yes</td></tr>
<tr><td colspan="4">Responsibility for Ongoing Management of the Landscaped Area</td><td rowspan="7">Yes</td></tr>
<tr><td>Landscaped Area</td><td colspan="2">Persons / Agency</td><td>A Requirement Exists for Written Authority and/or Agreement to Remove/Modify/Manage Vegetation</td></tr>
<tr><td rowspan="2">Onsite</td><td>Landowner</td><td>Yes</td><td>Yes</td></tr>
<tr><td>Local Government</td><td>N/A</td><td>N/A</td></tr>
<tr><td rowspan="4">Offsite</td><td>Landowner</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Local Government</td><td>Yes</td><td>Yes</td></tr>
<tr><td>DBCA</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Main Roads WA</td><td>N/A</td><td>N/A</td></tr>
<tr><td colspan="4">An approved landscape management plan and/or written confirmation exists and is provided to demonstrate that agencies responsible for the ongoing management understand and support the vegetation classification assigned to the subject area and its resulting ongoing management implications on the agency.</td><td>No</td></tr>
<tr><td colspan="4">A written authority and management agreement exists and is provided to demonstrate an arrangement between adjoining landowners as to the responsibility for establishment and ongoing management of the defined area of land subject to a Landscape Management Plan.</td><td>No</td></tr>
<tr><td colspan="5">Modify the vegetation area and fuel loads by modifying/clearing an area of vegetation adjoining and parallel to the subject lot boundary for a depth of 6 metres.
The modified area must be maintained in a low bushfire threat state, able to be excluded from classification for BAL assessment purposes, managed in perpetuity and for which a formal acknowledgement of responsibility is established, or cleared of vegetation and ensure regrowth is not possible.</td></tr>
<tr><td colspan="5">Identification of the Area(s) of Land Subject to a Landscape Management Plan</td></tr>
<tr><td colspan="5">The subject lot.</td></tr>
<tr><td colspan="5">Location of the Landscape Management Plan / Authority / Confirmation / Agreement for Reference</td></tr>
<tr><td colspan="5">Land subject to the written authority/agreement is Lot 976 Nancarrow Way Ravenswood.</td></tr>
</table>

Implications for the BMP
None required

Figure 2.1

Managed Vegetation on Adjoining Lot

Lot 977 on Plan / Diagram 411195, Area: 1619.53
Nancarrow Way
Ravenswood
Shire of Murray

------ LEGEND ------

- Subject Site
- Cadastral
- Hydrants
- 150m Assessment Area
- 100m Assessment Area

Buildings

- Building
- Managed Vegetation

0 20 40 60 80 100

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Simone Eaton 19-02-2026
SCALE (A3): 1 : 1500

BUSHFIRE PRONE PLANNING

260023 - Fig2.1_LAND_Lot 977 Nancarrow Way Ravenswood.qgz

3.1 Bushfire Attack Level (BAL) Assessment Summary

EXPLANATORY INFORMATION

Caution! Future building works require a 'determined' BAL rating for building permit applications.

The BAL ratings identified from the map will more likely be only 'indicative' of what can be achieved – with planning compliance for this factor being achieved when BAL-29 is indicated.

Otherwise, an additional assessment of the site data for building application purposes is required, and potentially approval will need to be obtained for native vegetation modification and/or removal from the relevant authority.

3.1.1 BAL Determination Methodology and Location of Data and Results

LOCATION OF DATA & RESULTS					
BAL Determination Methodology		Location of the Site Assessment Data			Location of the Results
AS 3959:2018	Applied to Assessment	Classified Vegetation and Topography Map(s)	Calculation Input Variables		Assessed Bushfire Attack Levels and/or Radiant Heat Levels
			Summary Data	Detailed Data with Explanatory and Supporting Information	
Method 1 (Simplified)	Yes	Figure 3.1	Table 3.2	Appendix A1	Table 3.1 Table 3.3 / Figure 3.2
Method 2 (Detailed)	Yes	Figure 3.1	Table 3.2	Appendix A2	

3.1.2 BAL Ratings Derived from Figure 3.2

Table 3.1: Indicative and determined BAL(s) for future buildings/structures on the proposed lots.

BUSHFIRE ATTACK LEVEL FOR FUTURE BUILDINGS / STRUCTURES ON STATED LOT [1]		
Lot No.	Future Buildings / Structure	
	Indicative BAL [2]	Determined BAL [2]
New building	BAL-29	N/A

[1] The assessment data used to derive the BAL ratings is sourced from Table 3.1 and Figure 3.2.

[2] Refer to the start of Section 3 for an explanation of indicative versus determined BAL ratings.

3.1.3 Site Assessment Data Applied to Construction of Figure 3.2

RELEVANT CLASSIFIED VEGETATION	
Identification of Classified Vegetation that is Relevant to the Production of Figure 3.2	Relevant Vegetation Map
The relevant vegetation is the classified vegetation external to the lot boundaries. All identified classified vegetation areas, or portions of areas, within the subject lot are excluded. This approach is applied to indicate the achievable bushfire attack levels within the specified lot and the resultant area of developable land where buildings will be subject to BAL-29 or less. It is based on the following assumptions: 1. Any classified vegetation within a lot can potentially be managed or removed by the landowner to meet asset protection zone standards; and 2. Future development and consequent removal/management of vegetation that may take place on any adjoining lot cannot be part of considerations for the subject lot, unless by formal agreement	Figure 3.1
Supporting Assessment Details: Land outside the subject lot will be subject to a vegetation management to ensure that BAL-29 for the subject site can be achieved and maintained in perpetuity. Refer to Figure 3.2.	

Table 3.2: Calculation inputs applied to deriving the vegetation separation distances corresponding to different levels of potential radiant heat transfer.

DATA APPLIED TO CALCULATE THE SITE SPECIFIC VEGETATION SEPARATION DISTANCES CORRESPONDING TO POTENTIAL RADIANT HEAT TRANSFER LEVELS [1]													
Applied BAL Determination Method		METHOD 1 - SIMPLIFIED PROCEDURE (AS 3959:2018 CLAUSE 2.2) AND METHOD 2 - DETAILED PROCEDURE (AS 3959:2018 APPENDIX B)											
The Calculation Input Variables - Corresponding to the Applied BAL Determination Method [2]													
Methods 1 and 2		Method 1			Method 2								
Vegetation Classification		FDI	Effective Slope		Site Slope	FFDI or GFDI	Flame Temp.	Elevation of Receiver	Flame Width	Fireline Intensity	Flame Length	Modified View Factor	
			Applied Range	Measured									
Area	Class		degree range	degrees	degrees		K	metres	metres	kW/m	metres	% Reduction	
1	Excluded cl 2.2.3.2(f)	80	-	-									
2	Excluded cl 2.2.3.2(e)	80	-	-									
3	(D) Scrub	80	Upslope or flat 0	flat 0	Default	Default	Default	Default	10	Default	26	Default	
4	Excluded cl 2.2.3.2(a)	80	-	-									
5	(G) Grassland	80	Upslope or flat 0	flat 0									

Note 1: The values used to indicate levels of potential radiant heat transfer (from fire in bushfire prone vegetation to exposed elements at risk), will be stated in subsequent tables as either as a bushfire attack level (BAL) and/or as kilowatts per square metre (kW/m2), as relevant to the application of the value and the type and use of the element at risk.

Note 2: All data and information supporting the determination of the classifications and values stated in this table is presented in Appendix A. Where the values are stated as 'default' these are either the values stated in AS 3959:2018, Table B1 or the values calculated as intermediate or final outputs through application of the equations of the AS 3959:2018 BAL determination methodology. They are not values derived by the assessor.

Table 3.3: Vegetation separation distances corresponding to the stated levels of potential radiant heat transfer.

THE CALCULATED (SITE SPECIFIC) VEGETATION SEPARATION DISTANCES CORRESPONDING TO THE STATED LEVEL OF POTENTIAL RADIANT HEAT TRANSFER (METRES) [1]									
Vegetation Classification		Maximum Radiant Heat Transfer (Flux)							
		>40 kW/m²	40 kW/m²	29 kW/m²	19 kW/m²	12.5 kW/m²	N/A [2]	10 kW/m²	2 kW/m²
		Bushfire Attack Levels							
Area	Class	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL12.5	BAL-LOW		
1	Excluded cl 2.2.3.2(f)	-	-	-	-	-	-	-	-
2	Excluded cl 2.2.3.2(e)	-	-	-	-	-	-	-	-
3	(D) Scrub	<8.4	8.4-<9.9	9.9-<12.1	12.1-<14.6	14.6-<100	>100	-	-
4	Excluded cl 2.2.3.2(a)	-	-	-	-	-	-	-	-
5	(G) Grassland	<6	6-<8	8-<12	12-<17	17-<100	>100	-	-

Note 1: The calculated results are illustrated in Figure 3.2. All applied calculation input variables are presented in Table 3.2. A copy of the radiant heat calculator output for each area of classified vegetation is presented in Appendix A3.

Note 2: The BAL-LOW rating does not represent a maximum level of radiant heat transfer. The rating is applied when the separation distance is at least 100m from all classified vegetation except Grassland, for which 50m applies.

Figure 3.1

Classified Vegetation & Topography (Existing)

Lot 977 on Plan / Diagram 411195, Area: 1619.53
Nancarrow Way
Ravenswood
Shire of Murray

------ LEGEND ------

- Subject Site
- Cadastral
- Photo and Direction
- Buildings
- Hydrants
- Vegetation Distance (m)
- 150m Assessment Area
- 100m Assessment Area

Classified Vegetation

- Woodland
- Scrub
- Grassland
- Excluded 2,2,3,2 (e)
- Excluded 2,2,3,2 (f)

0 20 40 60 80 100

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Simone Eaton 16-02-2026
SCALE (A3): 1 : 1500

BUSHFIRE PRONE PLANNING

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

Figure 3.2

Indicative 10m BAL-29 Setback

Lot 977 on Plan / Diagram 411195, Area: 1619.53
Nancarrow Way
Ravenswood
Shire of Murray

AREA 5
Class (G) Grassland
Effective Slope 0°

AREA 1
Excluded

JONES LANE

JOLLY RAMBLER BVD

34 m

Lot 977

Building

Managed Vegetation

AREA 3
Class (D) Scrub
Effective Slope 0°

26 m

6 m

4 m

6m

AREA 1
Excluded

AREA 3
Class (D) Scrub
Effective Slope 0°

NANCARROW WAY

RUTHERFORD VISTA

AREA 1
Excluded

------ LEGEND ------

- Subject Site
- Cadastral

Buildings

- Building
- Managed Vegetation
- Indicative 10m BAL29 Setback
- Vegetation Distance (m)

Classified Vegetation

- Scrub
- Grassland
- Excluded 2,2,3,2 (e)
- Excluded 2,2,3,2 (f)

0 5 10 15 20 25

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Simone Eaton 19-02-2026
SCALE (A3): 1 : 500

BUSHFIRE PRONE PLANNING

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

4 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (BPC)

EXPLANATORY INFORMATION

State Planning Policy 3.7 Bushfire (SPP 3.7) establishes policy outcomes (cl. 6) that "specify the role of planning and development in contributing to the overall objectives" of the policy.

The policy outcomes are incorporated into the four elements of the bushfire protection criteria established in the Planning for Bushfire Guidelines (Guidelines).

CONSEQUENTLY, TO SATISFY THE OBJECTIVES AND POLICY OUTCOMES OF SPP 3.7, A PLANNING PROPOSAL IN A DESIGNATED BUSHFIRE PRONE AREA IS REQUIRED TO DEMONSTRATE THAT COMPLIANCE WITH THE BUSHFIRE PROTECTION CRITERIA CAN BE ACHIEVED.

The Guidelines in Section 2.2.1 establish two pathways to demonstrate compliance:

1. The deemed to comply pathway - in which compliance is able to be demonstrated with all relevant acceptable solutions associated with each Element, for a specific planning stage or use; or
2. An alternative pathway when all relevant acceptable solutions cannot be fully achieved, which utilises either:
   (a) The outcomes-based approach (established in SPP 3.7 cl. 6) alone; or
   (b) A combination of the outcomes-based approach and the acceptable solutions.

For the subject planning proposal:

- The assessment applying the deemed to comply pathway assessment is presented in Section 5.3.
- When an assessment applying the alternative pathway is necessary, the required additional information is presented in Section 5.4.

4.1 Local Government Variations to Apply

EXPLANATORY INFORMATION

1. Local governments may add to or modify the acceptable solutions contained within the Guidelines to recognise special local or regional circumstances that reinforce the SPP 3.7 objectives and outcomes. This is achieved through regional or local variations that form part of a local planning strategy and/or local planning scheme via a scheme amendment or special control area.

   This could include acceptable solutions that address topography, vegetation or climate to the satisfaction of the Western Australian Planning Commission (WAPC) that the modifications comply with the corresponding SPP 3.7 objectives and outcomes. (Planning for Bushfire Guidelines, s. 3.4, 2024).
2. Under the relevant state legislation (LPS Regulations 2015), SPP 3.7 does not apply to hosted or unhosted short-term rental accommodation. However, the local government under its Local Planning framework (i.e. Strategy / Scheme and Policy as applicable), may require that certain bushfire protection measures or variations to the measures (the bushfire protection criteria), established by SPP 3.7 and the Guidelines, are to be applied.

Endorsed regional or local variations to the acceptable solutions apply to the assessments against the Bushfire Protection Criteria for the planning proposal?	None known or identified
The proposed land use for hosted or unhosted short-term rental accommodation, and the local government requires certain bushfire protection measures, contained within the BPC, to be applied, that under the LPS Regulations 2015, would otherwise not be required?	N/A

4.2 Assessment Summary

PATHWAY APPLIED TO DEMONSTRATE ACHIEVING POLICY OUTCOMES OF SPP 3.7 BUSHFIRE [1] **INCLUDES SUMMARY OF THE PROPOSAL'S ASSESSMENT AGAINST THE BPC ACCEPTABLE SOLUTIONS**			
DEVELOPMENT – CLASS 9 VULNERABLE USE BUILDINGS			
The Acceptable Solutions Corresponding to the Policy Outcomes of SPP 3.7 Bushfire as Incorporated into the Elements of the Bushfire Protection Criteria (Guidelines)	Acceptable Solutions Pathway Compliance Status	Alternative Pathway [2] Outcomes-Based Approach Only	Alternative Pathway [2] Combination of Pathways
ELEMENT 2: SITING AND DESIGN:	Fully Compliant	-	-
A2.1 Siting and design	Fully Compliant		
A2.2 Asset Protection Zone (APZ)	Fully Compliant		
A2.3 Clearing of native vegetation	Fully Compliant		
A2.4 Landscape management plan	Fully Compliant		
A2.5 Onsite shelter (safer building) - schools	Not Applicable		
A2.6 Storage of hazardous, flammable and/or combustible materials	Not Applicable		
ELEMENT 3: VEHICULAR ACCESS:	Fully Compliant	-	-
A3.1 Public roads	Fully Compliant		
A3.2 Access routes	Fully Compliant		
A3.3a No-through roads	Not Applicable		
A3.3b No-through roads technical requirements	Not Applicable		
A3.4 Emergency access way	Not Applicable		
A3.5 Fire service access route	Not Applicable		
A3.6 Internal vehicular access & private driveways	Not Applicable		
A3.7 Signage	Fully Compliant		
ELEMENT 4: WATER SUPPLY:	Fully Compliant	-	-
A4.1 Water supply	Fully Compliant		
Note 1: Achieving the objectives and policy outcomes of SPP 3.7 Bushfire can be demonstrated through either the acceptable solutions pathway, the outcomes- based approach only, or a combination of both pathways (refer to Guidelines s 2.2.1). Note 2: When applied, the required additional assessment details are provided in Section 5.4 of this BMP. The content and comprehensiveness of the assessment will vary dependant on the specific conditions of the broader landscape, the development site, its use and the degree to which any relevant acceptable solutions cannot be complied with.			

4.3 BPC 8.1: Development – Class 9 Vulnerable Use Buildings - Acceptable Solutions Assessment

4.3.1 Element 2: Siting and Design

ELEMENT 2: SITING AND DESIGN (DEVELOPMENT – CLASS 9 VULNERABLE USE BUILDINGS)

IMPORTANT INFORMATION REGARDING ADDITIONAL BCA REQUIREMENTS

Be aware of the following when the proposed Class 9 vulnerable use building is required to comply with the bushfire resistance and additional requirements of the Building Code of Australia (BCA) contained within the National Construction Code 2022 (NCC 2022).

The Building Code of Australia is applied under the WA Building Act 2011/Building Regulations 2012. The BCA establishes that these buildings must have certain minimum separation distances from bushfire prone vegetation – with site specific conditions determining these distances.

The separation distances are significantly greater than the required minimum distances established by SPP 3.7/Guidelines under the Planning and Development Act 2005.

This BMP as a bushfire planning assessment is not required to determine the additional separation distances that are to apply to the subject planning proposal or its ability to comply with those requirements.

However, in consideration of the relevant provision in the LPS Regulations 2015 (see below), Bushfire Prone Planning is taking the approach of informing decision makers regarding the additional separations distances to be considered.

> *LPS Regulations 2015, Schedule 2, Part 10A – Bushfire risk management, cl. 78E (1) – "In considering an application for development approval for development to which this Part applies, the local government is to have regard to the bushfire resistant construction requirements of the Building Code".*

The separation distances from classified vegetation established by the BCA, when applicable to the subject planning proposal, are presented in this BMP as an addendum. Refer also to information provided in Appendix B3 of this BMP.

EXPLANATORY INFORMATION

Refer to Appendices B1 and B3 of this BMP for additional information and to *the bushfire protection measure implementation checklist in Section 6 for the APZ dimensions applicable to this planning proposal.*

The Planning Assessment and the APZ

This assessment is a 'planning assessment' being conducted for planning approval purposes only. All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended).

> *Note the assessment is not conducted for building approval purposes. The derivation of 'determined' BAL ratings for building permit applications is not the intended outcome of this planning assessment. However, in limited situations, the presented indicative BAL rating might also be considered as 'determined'.*

To comply with the relevant acceptable solutions contained in the 'Bushfire Planning Guidelines', the subject planning proposal must demonstrate that the required minimum sized asset protection zone (APZ) - subject to location constraints and allowances established by the Guidelines - can be installed surrounding a habitable or specified building.

Approved BMP's and the APZ Dimensions to be Implemented

An approved BMP, unless stated otherwise, is only approving the installation of an APZ comprised of:

- The minimum dimensions that ensure the radiant heat impact of a bushfire (on building works) does not exceed 29 kW/m² (BAL-29); or
- For specific 'vulnerable' land uses, the minimum dimensions that ensures the radiant heat impact of a bushfire (on building works) does not exceed the level of radiant heat exposure stated in the applicable acceptable solution; or
- The specific minimum dimensions that may be applied through the application of an outcomes-based approach.

Consequently, the 'minimum' dimensions of the approved APZ are also the 'maximum' approved dimensions when installation of the APZ will require the modification/removal of native vegetation. Installing a larger dimensioned APZ, to lower the determined BAL rating of specific building works, will need additional approval from the relevant planning authority.

The following bushfire planning policy and guidance potentially limit installed APZ dimensions:

- SPP 3.7 Bushfire, Policy Objectives, cl. 5.5 states – "Prioritise the retention of native vegetation for biodiversity conservation, environmental protection and landscape amenity.
- SPP 3.7 Bushfire, Policy Outcomes, cl. 6.2 - establishes that clearing of native vegetation is to be avoided or minimised in managing or mitigating bushfire risk.
- The Guidelines, Appendix B2, B.2.1 states - "clearing or modification of native vegetation to reduce the radiant heat impact below 29 kW/m² is generally not supported."

	The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved
O2	Ensure siting and design solutions: • Manage or mitigate the bushfire risk to people, property and infrastructure; and • Avoid, or where unavoidable, minimises the clearing of native vegetation. (SPP 3.7, 6.2)
	Acceptable Solutions Pathway - Compliance Statement
E2	The planning proposal is fully compliant with all applicable acceptable solutions and therefore achieves the required outcomes of this element.
	Alternative Pathway Applied to Demonstrate Ability to Achieve SPP 3.7 Outcomes
	N/A

ACCEPTABLE SOLUTIONS - ASSESSMENT STATEMENTS				
Check Box Legend:	☑ Relevant & met	☒ Relevant & not met	⃠ Not relevant	
A2.1 Siting and design	Applicable:	Yes	Compliant:	Yes
☑ ☐ ☐	Every habitable building achieves a radiant heat impact not exceeding 29 kW/m² (BAL-29).			

Assessment Supporting Details:

A formal agreement has been established with the local government for the management of a 6m strip of vegetation on their land, Lot 976 Nancarrow Way Ravenswood. <29kWm² exposure on the proposed building can be achieved. Refer to Addendum 2.

A2.2 Asset Protection Zone (APZ)	Applicable:	Yes	Compliant:	Yes

Where a habitable building(s) cannot be wholly within an area with a radiant heat impact not exceeding 29 kW/m² (BAL-29) in its pre-development state, an indicative APZ is to be provided and meet the following requirements for width, location and management:

☑ ☐ ☐ APZ Width: The APZ, when measured from any external wall or supporting post or column, is of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m² (BAL-29) to any part of the building, in all circumstances.

☐ ☐ ⊘ APZ Location – Option 1: The indicative 'Planning BAL-29' APZ can be contained solely within the boundaries of the lot.

☑ ☐ ☐ APZ Location – Option 2: The indicative 'Planning BAL-29' APZ cannot be contained solely within the boundaries of the lot. However, the relevant vegetation on the adjoining land / lot(s) is, and will continue to be, on an ongoing basis in perpetuity, low threat as per:

- Clause 2.2.3.2 of AS 3959 (including non-vegetated land such as a sealed or unsealed road, or a water body); or
- The requirements of the Guidelines Appendix B.2, Table 9 – APZ technical requirements; or
- The alternative standard in the local planning scheme (when it exists).

☑ ☐ ☐ APZ Management: The APZ is (or can and will be) managed in accordance with the requirements established in the Guidelines, Appendix B.2 or the alternative standard in the gazetted local planning scheme (when it exists).

Assessment Supporting Details:

The determined APZ satisfies the intent of AS 3959 and SPP 3.7 to ensure habitable buildings are protected from radiant heat impacts exceeding 29 kW/m².

Where the APZ extends beyond the lot boundary, evidence of ongoing low-threat management of the adjoining land is required. Refer to agreement noted in Addendum 2.

A2.3 Clearing of native vegetation	Applicable:	Yes	Compliant:	Yes

☑ ☐ ☐ The development avoids, or where unavoidable, minimises the clearing of native vegetation.

Assessment Supporting Details: There are no clearing requirements. Subject site is already cleared of vegetation.

A2.4 Landscape management plan	Applicable:	Yes	Compliant:	Yes

☑ ☐ ☐ A landscape management plan has been prepared to identify ongoing onsite vegetation management.

Assessment Supporting Details: A landscape management plan has been developed. Refer to Addendum 3.

A2.5 Onsite shelter (safer building) - schools	Applicable:	No	Compliant:	-

☐ ☐ ⊘ An on-site shelter (safer building) is provided in accordance with the Principal's guide to bushfire: Prepare your school for the bushfire season (Department of Education: October 2022).

Assessment Supporting Details: None required.

A2.6 Storage of hazardous, flammable and/or combustible materials	Applicable:	No	Compliant:	-

☐ ☐ ⊘	The proposed land use does not include the storage of hazardous, flammable and/or combustible materials as part of its ongoing day to day operations. Therefore, A2.6 is not applicable to the subject planning proposal.
☐ ☐ ⊘	The proposed land use will include the storage of hazardous, flammable and/or combustible materials as part of its ongoing day to day operations. These will be a quantity that trigger the requirement for a licence under the *Dangerous Goods Safety Act 2004* or the *Environmental Protection Act 1986*. Consequently, the requirements under the above legislation will establish the storage requirements and therefore A2.6 is not applicable to the subject planning proposal.
☐ ☐ ⊘	The proposed land use will include the storage of hazardous, flammable and/or combustible materials as part of its ongoing day to day operations. These are not at a quantity that trigger the requirement for a licence under the *Dangerous Goods Safety Act 2004* or the *Environmental Protection Act 1986*. Consequently, the following established storage area requirements can and will be applied:
☐ ☐ ⊘	• The storage area is subject to a radiant heat impact not exceeding 29 kW/m^2 (BAL-29); and
☐ ☐ ⊘	• The construction of the storage area is non-combustible and shields the materials to reduce their exposure to radiant heat from the bushfire to levels significantly lower than 29 kW/m^2 and prevents the entry of debris and embers; and
☐ ☐ ⊘	• The construction of the storage area limits to the degree necessary and practical, the escape of sources of ignition from the stored materials into bushfire prone vegetation.

Assessment Supporting Details: Not applicable.

4.3.2 Element 3: Vehicular Access

ELEMENT 3: VEHICULAR ACCESS (DEVELOPMENT – CLASS 9 VULNERABLE USE BUILDINGS)	
All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended). When relevant, the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (DPLH, 2021 Rev B), is also referenced. The technical construction requirements for access types and components are established in the Guidelines Appendix B.3, Table 10 (certain information is copied and presented in Appendix C of this BMP). The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply. These are included as an appendix if requested by the local government. *Note:* *The following understanding of what constitutes a 'road', and the stated definitions can be important considerations for assessments against an acceptable solution for Element 3.* • *Guidelines Appendix B3: Vehicular Access, identifies a 'road' as being either a public road (that includes a no-through road) or a perimeter road. All other access types (i.e. emergency access ways, fire service access routes, battle-axes and private driveways) are considered a different class of access i.e. they are not 'roads'.* • *SPP 3.7 defines 'no-through road' as "a cul-de-sac or dead end road".* • *SPP 3.7 defines 'two-way access' as "vehicular access from a site in two different directions to at least two different suitable destinations". This allows for required access to potentially be provided by an emergency access way.*	
O3	The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved
	Ensure the design and capacity of vehicular access and egress provide: • For efficient and effective evacuation to a suitable destination(s); and/or • As a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option. (SPP 3.7, 6.3)
E3	Acceptable Solutions Pathway - Compliance Statement
	The planning proposal is fully compliant with all applicable acceptable solutions and therefore achieves the required outcomes of this element.
	Alternative Pathway Applied to Demonstrate Ability to Achieve SPP 3.7 Outcomes
	N/A
ACCEPTABLE SOLUTIONS - ASSESSMENT STATEMENTS	
Check Box Legend:	☑ Relevant & met ☒ Relevant & not met ⃠ Not relevant

A3.1 Public roads	Applicable:	Yes	Compliant:	Yes

☑ ☐ ☐	Public roads meet (or can and will meet) the technical requirements for minimum vertical clearance (4.5 metres) and minimum weight capacity (15 tonnes - includes bridges, culverts).
☑ ☐ ☐	Public roads meet (or can and will meet) the technical requirement recommended in the Guidelines in Appendix B3, B3.1 for a minimum horizontal clearance of 6 metres.
☑ ☐ ☐	Public road technical requirements for minimum horizontal clearance, gradients and curves should be in accordance with the class of road as specified in the Public Works Engineering Australasia (IPWEA) subdivision guidelines, Liveable Neighbourhoods, Austroads Standards, any applicable or relevant Main Roads standards, supplements, policies and any applicable or relevant local government standards or policies.

Assessment Supporting Details: None required.

A3.2 Access routes	Applicable:	Yes	Compliant:	Yes

☐ ☐ ⊘	The subject site is in Area 1 (Urban) (Map of BPA). Public road access, with all-weather surfaces, is provided to at least one suitable destination.
☑ ☐ ☐	The subject site is in Area 2 (Map of BPA). Public road access, with all-weather surfaces, is provided in two different directions, to two different suitable destinations.

Assessment Supporting Details: None required.

A3.3a No-through roads	Applicable:	No	Compliant:	-

☐ ☐ ⊘	A3.3a is not applicable to the subject planning proposal because the planning proposal is sited in Area 1 (Urban) (Map of BPA), and there is no limitation on no-through road lengths.
☐ ☐ ⊘	A3.3a is not applicable to the subject planning proposal because access to the subject site is via a private driveway from a public road providing two-way access. Consequently, vehicular access to the subject site does not have a no-through road component.
☐ ☐ ⊘	The subject site is in Area 2 (Map of BPA): Access to the subject site is via a no-through public road that does not exceed the established maximum of 200 metres in length from the subject site boundary to an intersection where two-way access is provided.
☐ ☐ ⊘	The subject site is in Area 2 (Map of BPA): Access to the subject site / lot(s) is via a no-through public road that exceeds the established maximum of 200 metres in length from the proposed lot(s) boundary to an intersection where two-way access is provided. It is demonstrated that there are site constraints and/or that there are no alternative design options to achieve the 200 metre maximum length. Compliant two-way access within 200 metres from the proposed lot(s) boundary will be established through the provision (or existence) of a compliant emergency access way through the application of acceptable solution A3.4: Emergency Access Way.
☐ ☐ ⊘	The subject site is in Area 2 (Map of BPA): Access to the subject site / lot(s) is via a no-through public road that exceeds the established maximum of 200 metres in length from the proposed lot(s) boundary to an intersection where two-way access is provided.

	However, the additional road length can be considered to satisfy the acceptable solution as the following established requirements can be met:
☐ ☐ ⊘	• It is demonstrated that that an alternative access, including an emergency access way, cannot be provided due to site constraints; and
☐ ☐ ⊘	• The no-through road travels towards a suitable destination; and
☐ ☐ ⊘	• The balance of the no-through road that is greater than 200 metres from the subject site is: o Wholly within a residential built-out area; or o Wholly within an area designated Area 1 (Urban) on Map of BPA; or o Potentially subject to radiant heat levels from adjacent bushfire prone vegetation not exceeding 12.5 kW/m^2 / BAL-LOW (Guidelines Figure 29).
Assessment Supporting Details: None required.	

A3.3b No-through roads technical requirements	Applicable:	No	Compliant:	-

☐ ☐ ⊘	A3.3b is not applicable to the subject planning proposal because the assessment against A3.3a has established that vehicular access to the site does not have a no-through road component.
☐ ☐ ⊘	The no-through road meets (or can and will meet) the public road technical requirements for minimum vertical clearance (4.5 metres) and minimum weight capacity (15 tonnes - includes bridges, culverts).
☐ ☐ ⊘	The no-through road meets (or can and will meet) the public road technical requirement recommended in the Guidelines in Appendix B3, B3.1 for a minimum horizontal clearance of 6 metres.
☐ ☐ ⊘	The no-through road (i.e. public road) technical requirements for minimum horizontal clearance (excluding perimeter road), gradients and curves should be in accordance with the class of road as specified in the Public Works Engineering Australasia (IPWEA) subdivision guidelines, Liveable Neighbourhoods, Austroads Standards, any applicable or relevant Main Roads standards, supplements, policies and any applicable or relevant local government standards or policies
☐ ☐ ⊘	The turnaround area/head meets (or can and will meet) the design requirements established by the Guidelines, Figure 30.
Assessment Supporting Details: None required.	

A3.4 Emergency access way	Applicable:	No	Compliant:	-

☑ ☐ ☐	A3.4 is not applicable to the subject planning proposal because it has been assessed as compliant with A3.2 (and A3.3a and A3.3b when applicable), and an emergency access way is not required.
☐ ☐ ⊘	A3.4 is applicable to the subject planning proposal because an emergency access way currently exists and has been part of the subject planning proposal's ability to comply with A3.2. Consequently, it will apply with regard to meeting (or being able to meet), the specified technical requirements and ongoing management requirements, rather than its installation.
☐ ☐ ⊘	The requirements established for acceptable no-through road access to the subject site in A3.2 and A3.3a and/or A3.3b cannot be achieved. An emergency access way (EAW) is provided as the alternative access and can be considered as an acceptable solution, when the following established requirements are met:
☐ ☐ ⊘	• It is demonstrated that site constraints prevent the requirements of A3.2 and A3.3 being met; and
☐ ☐ ⊘	• The access way is no more than 500 metres in length, provides a through connection to a public road connecting to a public road network; and
☐ ☐ ⊘	• The access way meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum horizontal clearance (Map of BPA Area 1 (Urban) = 6 metres and Area 2 = 10 metres), minimum vertical clearance (4.5 metres), minimum weight capacity (15 tonnes - includes bridges, culverts) and minimum inner radius of road curves (8.5 metres); and
☐ ☐ ⊘	• The access way meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for crossfalls and gradients for different surfaces and dips; and
☐ ☐ ⊘	• The access way will be signposted and, if gated, gates will open for the whole carriageway width and remain unlocked; and
☐ ☐ ⊘	• The proponent has obtained consent from the local government, that it will accept care, control and management responsibilities for the emergency access way.

Assessment Supporting Details: None required.

A3.5 Fire service access route	Applicable:	No	Compliant:	-

Note To Decision Makers

DPLH officer level advice has been received by BPP (email 18 November 2024) stating that this acceptable solution is applicable to a development application planning proposal when "it is necessary and serves a purpose" i.e. contributes meaningfully to mitigating risks associated with a bushfire event.

The DPLH response indicates a flexibility with the application of this acceptable solution that typically does not exist with other acceptable solutions for development applications (other than access route signage).

Consequently, what should apply as suitable firefighter access, in the opinion of the bushfire consultant, is presented as part of this acceptable solution assessment and there is no need to apply an outcomes-based assessment.

Note the following that have also been considered in determining this approach:

- *The wording of this acceptable solution (Guidelines BPC 8 A3.6) includes "Where proposed lots adjoin classified vegetation". This is better aligned with application to subdivision proposals than a single existing lot and a development application;*

- *The Guidelines explanatory note B3.6 establishes that the fire service access route (FSAR) "can be provided as either an easement in gross over private or Crown land or ceded to the Crown as a reserve. In both approaches management of the FSAR is by the local government as the grantee of the easement or management body of the reserve".*

  This explanation indicates the application of this acceptable solution is better aligned with its application to subdivision proposals than a development application involving a single existing lot; and
- *The management and technical requirements for a FSAR are likely to be impractical and/or excessive for development on the majority of individual lots.*

Where the bushfire consultant's assessment establishes that suitable firefighter access to adjoining classified vegetation (excluding Class G Grassland) is "necessary and serves a purpose", this assessment will identify that the acceptable solution is applicable and the appropriate requirements. The following is considered:

- *If suitable firefighter access is required and currently exists or not;*
- *If suitable firefighter access is required and does not currently exist, the necessary physical requirements must give due regard to the use and scale of proposed development, the size of the lot and the identified bushfire hazard threat levels; and*
- *When is it appropriate to establish firefighter access that complies with the technical requirements for a FSAR (Guidelines Table 10).*

☐ ☐ ⊘ A3.5 is not applicable to the subject planning proposal because the subject lot(s) do not adjoin classified vegetation or only adjoin Class G Grassland (classified under AS 3959).

☑ ☐ ☐ A3.5 is not applicable to the subject planning proposal because the provision of suitable firefighter access within or external to the subject lot(s) is not necessary and would serve no purpose. It is not a practical response to any identified bushfire hazard associated with the subject planning proposal.

☐ ☐ ⊘ The subject lot(s) adjoin classified vegetation that is not Class G Grassland (classified under AS 3959). Suitable firefighter access, in the opinion of the bushfire consultant, is considered 'necessary and serves a purpose'.

Suitable firefighter access to the classified vegetation is currently available. This firefighter access achieves the intent of the acceptable solution but applies a more pragmatic design than that established by the FSAR technical requirements and is aligned with the specifics of the planning proposal's site and use.

The requirements for maintenance of the defined firefighter access are referenced in the landowner responsibility checklists of this BMP.

☐ ☐ ⊘ The subject lot(s) adjoin classified vegetation that is not Class G Grassland (classified under AS 3959). Suitable firefighter access, in the opinion of the bushfire consultant, is considered 'necessary and serves a purpose'.

Suitable firefighter access to the classified vegetation is currently not available.

The physical requirements of the suitable firefighter access are established by the bushfire consultant within the assessment supporting details below (these will align at a minimum with typical 'firebreak' requirements when installed for firefighter access).

This firefighter access achieves the intent of the acceptable solution but applies a more pragmatic design than that established by the FSAR technical requirements and aligned with the specifics of the planning proposal's site and use.

The requirements for implementation and maintenance of the firefighter access are referenced in the landowner responsibility checklists of this BMP.

☐ ☐ ⊘ The subject lot(s) adjoin classified vegetation that is not Class G Grassland (classified under AS 3959). A fire service access route is to be provided for firefighter access to this vegetation. It can and will meet the following established requirements:

☐ ☐ ⊘	• The fire service access route is a through-route with no dead-ends, no further than 500 metres from a public road and will be signposted; and
☐ ☐ ⊘	• The fire service access route meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum horizontal clearance (Map of BPA Area 1 (Urban) = 6 metres and Area 2 = 10 metres), minimum vertical clearance (4.5 metres), minimum weight capacity (15 tonnes - includes bridges, culverts) and minimum inner radius of road curves (8.5 metres); and
☐ ☐ ⊘	• The fire service access route meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for crossfalls and gradients for different surfaces and dips; and
☐ ☐ ⊘	• When gated, gates will open the whole carriageway width and can be locked by the local government and/or the emergency services, when keys are provided for each gate; and
☐ ☐ ⊘	• The proponent has obtained consent from the local government, that it will accept care, control and management responsibilities for the fire service access route (unless it is a Crown reserve managed by another entity).

Assessment Supporting Details: None required.

A3.6 Internal vehicular access and private driveways	Applicable:	No	Compliant:	-

☑ ☐ ☐	A3.6 is not applicable to the subject planning proposal because the proposal does not contain internal vehicular access and private driveways longer than 70 metres.
☐ ☐ ⊘	There are internal vehicular access and private driveways longer than 70 metres and the subject site meets (or can and will meet) all the following established requirements:
☐ ☐ ⊘	• The private driveway meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum horizontal clearance (6 metres) or where not required to comply with the Guidelines width, it meets the requirements of the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision; and
☐ ☐ ⊘	• The private driveway meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum vertical clearance (4.5 metres), minimum weight capacity (15 tonnes - includes bridges, culverts) and minimum inner radius of road curves (8.5 metres); and
☐ ☐ ⊘	• The private driveway meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for the gradients of different surfaces and dips; and
☐ ☐ ⊘	• Passing bays are (or can and will be) installed every 200 metres with a minimum length of 20 metres and a minimum additional carriageway width of 2 metres i.e. the combined carriageway width of the passing bay and constructed private driveway will be a minimum 6 metres; and
☐ ☐ ⊘	• The turnaround area/head meets (or can and will meet) the design and location (within 30m of main habitable building) requirements established by the Guidelines (refer to Figures 30 and 38).

Assessment Supporting Details: None required.

A3.7 Signage	Applicable:	Yes	Compliant:	Yes

Note To Decision Makers

DPLH officer level advice has been received by BPP (email 18 November 2024) stating that this acceptable solution is applicable to a development application planning proposal when "it is necessary and serves a purpose" i.e. contributes meaningfully to mitigating risks associated with a bushfire event.

The DPLH response indicates a flexibility with the application of this acceptable solution that typically does not exist with other acceptable solutions for development applications (other than a fire service access route).

There are development application situations where this acceptable solution is unlikely to serve a purpose and would not contribute meaningfully to the reduction of bushfire risk.

This is likely to be the case for situations which have attributes such as; relatively small lot size, no or limited length no-through roads, good public road access network (surfaces, widths, gradients, visibility, connectivity etc), multiple suitable destinations easily, good road signage or in a built out areas or situations where persons are likely to be familiar with their surrounds.

Consequently, should the described signage requirements of the acceptable solution, in the opinion of the bushfire consultant, serve no purpose – justification for this position is presented as part of this acceptable solution assessment and there is no need to apply an outcomes-based assessment.

☐ ☐ ⊘	A3.8 is not applicable to the subject planning proposal because the provision of signage is, in the opinion of the bushfire consultant, not necessary and would serve no purpose. Signage would not meaningfully contribute to mitigating risks associated with a bushfire event, for the subject proposal.
☑ ☐ ☐	Signage can and will be provided within the subject site, advising of where each access route travels to and the distance and general information on what to do in the event of a bushfire.

Assessment Supporting Details:

Support for Occupants and Visitors

Visitors to vulnerable land uses (e.g., childcare), may be unfamiliar with the site layout and access points. Signage informs them of the location of all access routes, their direction, distance, and evacuation procedures, improving the likelihood of safe egress.

Alignment with SPP 3.7 and Guidelines

SPP 3.7 identifies evacuation planning and safe access as key components of bushfire risk mitigation.

The Planning for Bushfire Guidelines (Appendix C.2) recommend clearly marked routes and communication measures for people on site during a bushfire. Signage directly supports this outcome.

Facilitation of Emergency Response

Signage assists fire and emergency services in navigating the site efficiently, particularly under stressful conditions or reduced visibility. This improves the speed and effectiveness of fire suppression and evacuation efforts.

Mitigation of Human Error and Risk

During a bushfire event, occupants may panic or become disoriented. Signage reduces the risk of taking unsafe routes, entering hazardous areas, or delaying evacuation, which is critical for vulnerable users.

4.3.3 Element 4: Water Supply

ELEMENT 4: WATER SUPPLY (DEVELOPMENT – CLASS 9 VULNERABLE USE BUILDINGS)					
All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended). When relevant, the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (DPLH, 2021 Rev B), is also referenced.					
O4	The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved				
	Ensure that sufficient water is available and accessible for emergency services, to enable people, property and infrastructure to be defended from bushfire. (SPP 3.7, 6.4)				
E4	Acceptable Solutions Pathway - Compliance Statement				
	The planning proposal is fully compliant with all applicable acceptable solutions and therefore achieves the required outcomes of this element.				
	Alternative Pathway Applied to Demonstrate Ability to Achieve SPP 3.7 Outcomes				
	N/A				
ACCEPTABLE SOLUTIONS - ASSESSMENT STATEMENTS					
Check Box Legend:	☑ Relevant & met	☒ Relevant & not met	⃠ Not relevant		
A4.1 Water supply		Applicable:	Yes	Compliant:	Yes
☑ ☐ ☐	Evidence is provided that a reticulated water supply, available for firefighting purposes, exists or can be provided. Hydrant connection(s) will be provided in accordance with the specifications established by the relevant water supply authority (refer also to hydrant location information in Appendix D of this BMP).				
☐ ☐ ⃠	The BPC Explanatory Notes in Appendix B.4: Water Supply introduce additional measure as best practice but voluntary. The following measure is adopted by the planning proposal: The subject site will have a <u>reticulated</u> water supply but is in an area designated as Area 2 on the Map of BPA and/or the local government area has known issues with water supply or pressure. Water supply tank(s) and fittings dedicated to firefighting purposes (noting that combining drinking and firefighting uses of water is not recommended and may be contrary to relevant provisions), that satisfy the construction and design requirements established in the Guidelines, Appendix B4: Water Supply, will be provided.				
☐ ☐ ⃠	The BPC Explanatory Notes in Appendix B.4: Water Supply introduce additional measure as best practice but voluntary. The following measure is adopted by the planning proposal: The subject site is serviced by reticulated water. However, the distance from the public road (along which the fire hydrant is located) to the farthest part of the habitable building is greater than 70 metres, exceeding the reach of a hose reel. A water supply tank will be installed within the lot.				
<u>Assessment Supporting Details:</u> A hydrant for access to the reticulated water supply is located directly opposite the proposed facility on Nancarrow Way.					

4.4 Required Additional Bushfire Protection Measures

EXPLANATORY INFORMATION

The following bushfire protection measures are additional to, or a variation of, those established by the relevant acceptable solutions of the bushfire protection criteria and applied to the planning proposal within Section 5.3 of this BMP.

The intent of their application is to improve the bushfire performance of the future development/use and reduce, for persons and property, the residual levels of the risks associated with a bushfire event.

The development of these additional and/or varied bushfire protection measures can originate from the following sources (not exhaustive). Their application to the subject planning proposal is indicated below and detailed within this section.

The implementation and maintenance responsibility for these additional protection measures is established in Section 6: Responsibility Checklists.

Source of the Required Additional Bushfire Protection Measures	Applicable to the Subject Planning Proposal
1. When the assessments within the BMP have applied an outcomes-based approach and established additional protection measures.	No
2. The operational documents generated through the process of developing a Bushfire Risk Report (Assessment and Management).	No
3. The operational documents generated through the process of developing a Bushfire Emergency Plan.	Yes
4. From a local government including: a) Variations to acceptable solutions; and/or b) Additional protection measures to be implemented, including through 'Conditions' which may be applied to a 'Planning Approval' or a 'Notice of Determination.	Yes
5. Any additional bushfire planning guidance documents or position statements issued by the WA Department of Planning, Lands and Heritage.	No
6. The application of a radiant heat barrier.	No

Additional protection measure:

THE REQUIREMENT FOR AND SUITABILITY OF ACCESS FOR EVACUATION TO A SUITABLE DESTINATION

Demonstrate availability of access to facilitate site evacuation – establish the implementation and maintenance requirements (routes and technical standards). Or demonstrate why not possible /practical.

Demonstrate site is designed to ensure vehicular access and traffic management allow for vehicles to quickly evacuate the site in the event of a bushfire

Evacuation not possible – staying on site may be the best option

Primary and secondary public road access routes to and from the site have been identified and comply with the Shire of Murray road standards and emergency access requirements.

Traffic management has been considered to ensure safe and efficient egress for occupants in the event of a bushfire.

Where evacuation may not be fully practical (as this is a childcare centre), residual risk is managed through site design, building construction (BAL-29), and designated safe areas.

THE REQUIREMENT FOR AND ABILITY TO PROVIDE A SUITABLE ONSITE SHELTER

When considered necessary, it is demonstrated that there are suitable options for onsite shelter in the event of a bushfire. This may include the use of bushfire construction solutions applying design and materials to increase bushfire resilience (this includes the non-combustible envelope approach of the NS 300 2021 Standard).

Refer below: Bushfire Emergency Plan

THE REQUIREMENT FOR A BUSHFIRE EMERGENCY PLAN

Establishes the requirement, or otherwise, for the preparation of a bushfire emergency plan to be submitted with the BMP.

A site-specific Bushfire Emergency Plan will be prepared in accordance with SPP 3.7 and DFES guidance.

The expectation is that children and staff can be safely evacuated in the event of a bushfire. Sheltering in place is proposed as a contingency measure and must adequately protect occupants from radiant heat, flame contact and ember attack, and compliant with AS3959:2018 construction standards.

The BEP will include:

- Evacuation procedures;
- Responsibilities of staff and occupants;
- Location of safe refuge areas and egress routes; and
- Communication protocols with emergency services.

THE REQUIREMENT FOR A LANDSCAPE MANAGEMENT PLAN (ONSITE VEGETATION)

Establishes the requirement, or otherwise, for the preparation of a landscape management plan to be submitted with the BMP. This might be considered when its design and application is required to additionally reduce the exposure of persons and property to potential bushfire impacts, when compared to implementation of an asset protection zone in accordance BPC 7, A2.2 (Guidelines).

A Landscape Management Plan (LMP) will be prepared and will guide the management of vegetation and fuel loads on-site, including:

- The maintenance of Asset Protection Zones (APZs);
- Ensuring areas surrounding the building are in a low bushfire threat state; and
- Outline long-term obligations for vegetation maintenance to support ongoing safety.

5 RESPONSIBILITY CHECKLISTS

EXPLANATORY INFORMATION

This section of the BMP sets out the responsibilities of the relevant entity or person for:

- The initial implementation of the required bushfire protection measures and their timing; and
- The ongoing maintenance of the required bushfire protection measures to ensure their continued effectiveness.

Note: Protection measures that may be recommended by the bushfire consultant in the BMP section titled "Additional Recommended Bushfire Protection Measures' are not included in the Responsibility Checklists (at least initially).

The reason for this is the additional measure(s) are either:

- Provided as additional risk management advice to the proponent and it is up to them to choose to apply; or
- Part of an outcomes-based approach being applied to satisfy the required outcomes of SPP 3.7. Consequently, the need for their application (which would create a responsibility) is currently subject to assessment and approval by the decision maker.

  When their application is established by planning approval, the responsibility checklists in this BMP will be required to be updated.

5.1 Protection Measure Implementation Checklist

TABLE 5.1
PROPONENT/LANDOWNER RESPONSIBILITIES PRIOR TO SALE/OCCUPANCY/OPERATION

No.	IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Measures Established Under SPP 3.7 / Guidelines
1	Install an Asset Protection Zone (APZ) surrounding habitable buildings. It must: 1. Consist of non-vegetated areas and low bushfire threat vegetation, able to be maintained in perpetuity in a low threat state, by complying with the established APZ technical requirements (refer to the Guidelines Appendix B2 and Appendix B3 of this BMP); and 2. Be located within the boundaries of the lot except for any allowable variances allowed and discussed in the assessment against the bushfire protection criteria in Section 5, Element 2: Siting and design, and the relevant APZ acceptable solution. (Refer also to the illustrated APZ on the Property Bushfire Management Statement in Section 6.3); and • Have dimensions equal to the minimum distances corresponding to the BAL-29 rating as these are the distances approved for implementation when this BMP is approved by the decision maker (refer to the insert table below for the BAL-29 dimensions).

THE MINIMUM (SITE SPECIFIC) VEGETATION SEPARATION DISTANCES ESTABLISHING APZ DIMENSIONS [1]

Building / Structure	Vegetation Classification [2]		Minimum Distances (metres) Corresponding to Potential Bushfire Impact				
	Area / Class		2 kW/m²	10 kW/m²	BAL12.5	BAL-19	BAL-29
Proposed building	3	(D) Scrub	-	-	14.6m	12.1m	10m
	5	(G) Grassland			17m	12m	8m

Note 1: Refer to the Vegetation and Topography Map in Section 3.2.4

2	The development is a 'vulnerable land use'. Ensure the required signage is provided within the subject site, advising of where each access route travels to and the distance and general information on what to do in the event of a bushfire. Comply with the site specific requirements established in the BMP at Element 3: Vehicular access, A3.7 Signage.
3	A purchaser, occupier and/or operator of the site must be made aware of the existence of this approved BMP and provided with access to a copy and be informed of their ongoing responsibilities it contains.
4	The development is a 'vulnerable land use', and a Bushfire Emergency Plan (BEP) has been produced for site operations. Complete all relevant actions contained within the 'Site Preparation Procedure'.
5	The development is a 'vulnerable land use', and a Landscape Management Plan (LMP) has been prepared for site operations. Ensure the purchaser, occupier and/or operator of the site is made aware of the existence of the LMP and provided with access to a copy.
	IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Measures Established by this BMP as a Required Additional Measure in Section 4.4
6	Implement the bushfire protection measures that have been established within Section 4.4: 'Required Additional Bushfire Protection Measures', that are additional to and/or a variation to those established by the applicable acceptable solutions of the bushfire protection criteria and that must be implemented '. In summary these are: • Establish an agreement with the adjoining lot 976 for the implementation of the Landscape Management Plan. • Implement the BEP and train staff in its management.
	IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Measures Established by the Building Code of Australia (Vol. 1 and 2 of the National Construction Code)
7	Inform builders engaged to construct dwellings/additions and/or other relevant structures on a lot, of the existence of this approved Bushfire Management Plan (BMP). The existence of the BMP identifies that the development site is within a designated bushfire prone area. It indicates that bushfire construction standards (corresponding to an assessed bushfire attack level (BAL) for the building), may need to be applied to satisfy the bushfire performance requirements of the BCA. The BMP typically will only provide indicative BAL ratings. A separate assessment will likely be required to determine the applicable BAL rating (and produce a BAL Certificate), once site plans and conditions are established as the post development state. This BMP may also establish, as a 'Required Additional Bushfire Protection Measure', that bushfire construction requirements to be applied must be those corresponding to a specified higher BAL rating. Compliance with the current Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to residential buildings in bushfire prone areas (i.e., Class 1, 2 and 3 and associated Class 10a buildings and decks) and Class 9 vulnerable use buildings. Other classes of buildings may also be required to comply with these construction requirements when established by the relevant authority or if identified as a 'Required Additional Bushfire Protection Measure' bushfire protection measure within the BMP.

	The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and for Class 1 and associated Class 10a buildings only, the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended). *Note: This is not a requirement under the land use planning requirements established by SPP 3.7 Bushfire or the associated Guidelines. However, for informative purposes, the existence of this responsibility is noted in this and must be given due regard.*

5.2 Protection Measure Maintenance Checklist

TABLE 5.2 LANDOWNER/OCCUPIER – MAINTENANCE OF BUSHFIRE PROTECTION MEASURES	
No.	MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established Under SPP 3.7 / Guidelines
1	Annually review and enact the following maintenance responsibilities established in this approved BMP for the development site prior to the bushfire season.
2	The site's use is a 'vulnerable use', and a Bushfire Emergency Plan (BEP) has been produced for site operations. Complete all relevant actions contained within the 'Site Preparation Procedure' annually prior to the bushfire season.
3	Maintain the Asset Protection Zone (APZ) surrounding all habitable buildings by applying: 1. The Established APZ Technical Requirements: The APZ must consist of non-vegetated areas and low bushfire threat vegetation maintained in perpetuity in the low threat state by complying with the established APZ technical requirements (refer to the Guidelines Appendix B2 and Appendix B3 of this BMP); and 2. The Established APZ Dimensions: Refer to the first item of the protection measure implementation checklist in the preceding Table 6.1 in which the required dimensions have been established. 3. The dimensions corresponding to the determined BAL rating(s) applicable to the habitable building. This ensures the building's constructed bushfire resistance continues to align with its calculated potential exposure to flame contact and radiant heat.
4	The development is a 'vulnerable land use'. Maintain the required signage within the subject site, advising of where each access route travels to and the distance and general information on what to do in the event of a bushfire. Comply with the site specific requirements established in the BMP at Element 3: Vehicular access, A3.7 Signage.
5	When the property changes ownership or occupancy, to assist with the ongoing maintenance of the implemented bushfire protection measures, ensure that the relevant person(s) is aware of the BMP, and the responsibilities it contains. Provide access to a copy of the BMP and the Bushfire Emergency Plan (BEP).
MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established by this BMP as a Required Additional Measure in Section 4.4	

6	The proposal is considered a vulnerable land use. Additional bushfire protection measures have been established within Section 4.4: 'Required Additional Bushfire Protection Measures', that are additional to and/or a variation to those established by the applicable acceptable solutions of the bushfire protection criteria for development and must be maintained. In summary these are: • Maintain onsite vegetation in a low fuel state. • Manage or monitor compliance with the Landscape Management Plan applicable to the adjoining lot.
	MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established by a Local Government's Section 33 Notice Under the Bush Fires Act 1954
7	Maintain the required firebreaks, providing emergency access within the lot, to the stated specifications established by the Shire of Murray, Bushfire Compliance Notice. *Note: This is not a requirement under the land use planning requirements established by SPP 3.7 Bushfire or the associated Guidelines. However, for informative purposes, the existence of this responsibility is noted in this checklist and must be given due regard.*
	MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established by the Building Code of Australia (Vol. 1 and 2 of the National Construction Code)
8	Prior to any future building work, inform the builder of the existence of this approved Bushfire Management Plan (BMP). The BMP identifies that the development site is within a designated bushfire prone area and states the indicative (or determined) BAL rating(s) that may (or will) be applied to buildings/structures. A BAL assessment report may be required to confirm determined ratings and will be required when stated ratings are only indicative. BAL certificates will need to be produced to accompany building applications. Compliance with the current Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to residential buildings in bushfire prone areas (i.e., Class 1, 2 and 3 and associated Class 10a buildings and decks) and Class 9 vulnerable use buildings. Other classes of buildings may also be required to comply with these construction requirements when established by the relevant authority or if identified as a 'Required Additional Bushfire Protection Measure' bushfire protection measure within the BMP. The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and for Class 1 and associated Class 10a buildings only, the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended). *Note: This is not a requirement under the land use planning requirements established by SPP 3.7 Bushfire or the associated Guidelines. However, for informative purposes, the existence of this responsibility is noted in this checklist and must be given due regard.*

APPENDIX A: DETAILED BAL ASSESSMENT DATA AND SUPPORTING INFORMATION

A1: BAL Assessment Inputs Common to the Method 1 and Method 2 Procedures

A1.1: FIRE DANGER INDICES (FDI/FDI/GFDI)

When using Method 1 the relevant FDI value required to be applied for each state and region is established by AS 3959:2018, Table 2.1. Each FDI value applied in Tables 2.4 – 2.7 represents both the Forest Fire Danger Index (FFDI) and a deemed equivalent for the Grassland Fire Danger Index (GFDI), as per Table B2 in Appendix B. When using Method 2, the relevant FFDI and GFDI are applied.

The values may be able to be refined within a jurisdiction, where sufficient climatological data is available and in consultation with the relevant authority.

Relevant Jurisdiction:	WA	Region:	Whole State	Method 1	Applied FDI:	80
				Method 2	Applied FFDI:	80
					Applied GFDI:	110

A1.2: VEGETATION ASSESSMENT AND CLASSIFICATION

Vegetation Types and Classification

In accordance with AS 3959:2018 Clauses 2.2.3 and C2.2.3.1, all vegetation types within 100 metres of the 'site' (defined as "the part of the allotment of land on which a building stands or is to be erected"), are identified and classified. Any vegetation more than 100 metres from the site that has influenced the classification of vegetation within 100 metres of the site, is identified and noted. The maximum excess distance is established by AS 3959: 2018 Clause 2.2.3.2 and is an additional 100 metres.

Classification is also guided by the Visual Guide for Bushfire Risk Assessment in WA (WA Department of Planning February 2016) and any relevant FPA Australia practice notes.

Modified Vegetation

The vegetation types have been assessed as they will be in their natural mature states, rather than what might be observed on the day. Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its expected re-generated mature state. Modified areas of vegetation can be excluded from classification if they consist of low threat vegetation (refer to Appendix B) and that any required active management can be expected to continue in perpetuity, and this can be adequately justified.

The Influence of Ground Slope

Where significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 Clauses 2.2.5 and C2.2.5.

THE INFLUENCE OF VEGETATION GREATER THAN 100 METRES FROM THE SUBJECT SITE	
Vegetation area(s) within 100m of the site whose classification has been influenced by the existence of bushfire prone vegetation from 100m – 200m from the site:	N/A
Assessment Statement:	No vegetation types exist close enough, or to a sufficient extent, within the relevant area to influence classification of vegetation within 100 metres of the subject site.

VEGETATION AREA 1 and 2						
Classification	N/A					
Types Identified	N/A		-		-	
Exclusion Clause	2.2.3.2 (e) Non-vegetated areas and (f) Low threat vegetation - minimal fuel condition.					
Effective Slope	Measured	N/A	Applied Range (Method 1)	N/A		
Foliage Cover (all layers)	N/A	Shrub/Heath Height	N/A	Tree Height	N/A	
Dominant & Sub-Dominant Layers	Not applicable.					
Understorey	Not applicable.					
Justification Comments:	Areas exist of roadways, pavement and low or no vegetation areas that are of no threat.					
Post Development Assumptions:	Not required					



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VEGETATION AREA 3						
Classification	D. SCRUB					
Types Identified	Closed scrub D-13		Open scrub D-14			
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees		
Foliage Cover (all layers)	>30%	Shrub/Heath Height	>2m	Tree Height	Up to 30m	
Dominant & Sub-Dominant Layers	Native scrub predominantly to 2m in height. Foliage cover > 30%.					
Understorey	Shrub and grass understory.					
Justification Comments:	Some areas of public land appear to be maintained in accordance with the Shire of Murray, Bushfire Compliance Notice, and others not, so a Scrub (D) classification has been applied as a precaution.					
Post Development Assumptions:	Continued management in accordance with the Shire of Murray, Bushfire Compliance Notice.					



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VEGETATION AREA 4						
Classification	N/A					
Types Identified	-		-			
Exclusion Clause	2.2.3.2 (a) >100m from site					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees		
Foliage Cover (all layers)	N/A	Shrub/Heath Height	N/A	Tree Height	N/A	
Dominant & Sub-Dominant Layers	Not applicable.					
Understorey	Not applicable.					
Justification Comments:	Public open space area that appears well maintained and has therefore been excluded.					
Post Development Assumptions:	Continued management in accordance with Shire of Murray, Bushfire Compliance Notice.					

VEGETATION AREA 5						
Classification	G. GRASSLAND					
Types Identified	Open herbfield G-27					
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees		
Foliage Cover (all layers)	>30%	Shrub/Heath Height	N/A	Tree Height	N/A	
Dominant & Sub-Dominant Layers	Open grassland situated directly opposite the subject site (north) on Jolly Rambler Boulevard.					
Understorey	Not applicable.					
Justification Comments:	None required.					
Post Development Assumptions:	Continued management in accordance with the Shire of Murray, Bushfire Compliance Notice.					



PHOTO ID: 7



PHOTO ID: 8

EXPLAINING THE ASSESSMENT METHODOLOGY APPLIED BY BUSHFIRE PRONE PLANNING

DEFINITION: Effective slope is "the slope under that classified vegetation which most influences the bushfire attack" (AS 3959:2018, Clause 1.5.11).

"The effective slope under the classified vegetation is not the same as the average slope for the land surrounding the site of the proposed building. The effective slope is that slope which most significantly influences bushfire behaviour" (AS 3959:2018, Clause CB4).

The slope is described as upslope, flat or downslope when viewed from an exposed element (e.g., building) and looking towards the vegetation. It is measured in degrees.

[Note: Additional relevant guidance provided by AS 3959:2018 and NSW RFS, Planning for Bushfire Protection (2019) is incorporated into the applied assessment methodology and is presented at the end of this explanation.]

COMPOUND SLOPES UNDER VEGETATION AND DETERMINING SLOPE SIGNIFICANCE

Non-Linear Slopes: When the slope of ground under the vegetation out to the distance to be assessed (100 m or further if necessary), is not a straight line or nearly straight line slope, then it is made up of several different slopes i.e., it is a compound slope. The different slope angles and lengths must be factored into the determination of the effective slope value to be applied. Different slopes will potentially influence the bushfire rate of spread and intensity, both increasing and decreasing it.

Significant Slope: The AS 3959:2018 bushfire attack level determination methodology, with default inputs, models a fully developed bushfire. Therefore, a 'significant' slope is one that will significantly influence bushfire behaviour. To be 'significant' the length of the slope must be 'sufficient' to support a fully developed fire on that slope. The angle of a significant slope could be the determined effective slope for the area of classified vegetation if it is the one that 'most influences the bushfire attack'.

Sufficient Slope Length: Is a slope that will, as a minimum, allow the entire flame depth (flaming zone) of a fully developed fire (100m flame width) to exist on that slope.

The expected flame depth of a fully developed bushfire is a function of the length of time the flaming phase will exist on a section of the fuel bed (the 'residence time') and the bushfire's 'rate of spread'. For a given rate of spread, longer residence times result in greater flame depths. Greater flame depths are correlated with greater flame temperatures and greater flows of radiant heat.

The primary factors that will increase the residence time are:

- Heavier fine fuel loads of grass, leaf litter, twigs, bark etc less than 6mm in width and existing within the surface and near surface layers (and elevated fuel layers when contiguous with the base layers); and
- A greater percentage of larger fine fuels within the fuel load.

The primary factors that increase the rate of spread (apart from fire weather factors), include finer fuels, drier fuels, horizonal continuity of fuel and steeper upward ground slope in the direction of fire travel.

Example values:

- Residence Time: Grassfire 5 – 15 seconds, Forest fire 25 -50 seconds.
- Rate of Spread: Grassfires of a few km/hr are considered fast moving, 5-10 km/hr is common and fastest in the order of 25km/hr. Forest fire typically recorded in metres/hour with 1-1.5 km/hr being considered fast moving and fastest in the order of 3–4 km/hr.
- Flame Depth: More typically, a few metres for grasses to tens of metres for forest fires.

An Isolated Slope: For scenarios where there is a single significant slope (based on the above criteria) additional consideration would need to be given to the time and distance consumed by a bushfire still in its 'developing' phase. This will require due consideration be given to how it is potentially ignited i.e., from a single or multiple points, as this will influence the time and distance required to fully develop. For such scenarios, a normally significant slope may not be sufficiently long. It may be necessary to determine the potential bushfire impact more accurately by

justifying the application of a lesser effective slope, or a lower threat vegetation classification, or calculating a reduced head fire width (using short fire run modelling).

Determined Effective Slope: Only a 'significant' slope can potentially be the effective slope by itself. In which case, for a defined area of classified vegetation area, the worst significant slope under that vegetation is to apply.

The table below presents Bushfire Prone Planning's considerations applied to assessing short and/or compound slopes in determining the effective slope.

Slope Length (m)	Considered a Significant Slope	Considerations in Determining the Effective Slope
< 5	No	Where these short slopes exist as part of a compound slope under an area of classified vegetation, they can be ignored as they will not influence the fire behaviour in that vegetation.
5-20	Will Vary	These slopes will have a range of influence on fire behaviour from very little to a degree of influence that must be accounted for to some extent by the effective slope value that is applied (i.e., with a greater length - apply to a greater extent). But the actual slope of these shorter slopes is less likely to be applied as it is not a 'significant' length.
20-30	Possibly - Likely	The same considerations applied to the 5-20m slope lengths should be applied here. However, more justification would need to be presented to support an assessment of not 'significant'. For these slope lengths, consideration must be given more broadly to the potential level of risks associated with a bushfire event in this location. The risk level will be a function of the bushfire hazard threat levels (direct attack mechanisms) within the immediate and broader assessment area as influenced by local topography, vegetation extents and types and the exposure and vulnerability of persons and/or buildings/structures to these threats. Higher consequent risk levels require greater precaution meaning these length slopes should be considered 'significant', and vice versa. Consider the potential for a bushfire on adjoining or nearby land be a source of ignition and/or pre-heating to vegetation on the subject slope. Consider if vegetation on the slope is likely be ignited by a single ignition point or is multipoint ignition possible from bushfire on adjoining slopes or the surrounding area. Single point ignition will require a fire to travel further before being fully developed (DFES considers less than 100m fire runs may be considered a short fire run for forest, woodland and scrub vegetation classifications, RFS NSW applies 150m). Isolated slopes of this length are less likely to be considered significant as compared to when part of a compound slope.
>30	Yes	Likely to always be a significant slope unless isolated (i.e., exists alone) – in which case, justifying the application of a lesser effective slope, or a lower threat vegetation classification, or calculating a reduced head fire width, are approaches that may justifiably be applied.

BPP Approach - Slope Variation Within Areas of Vegetation

When multiple 'significant' slope lengths with large differences in degrees of effective slope (or different applicable slope ranges when AS 3959:2018 Method 1 is applied), exists under a single vegetation classification, these will be delineated as separate vegetation areas of classified vegetation to account for the difference in potential bushfire behaviour and impact, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.

Effective Slope Variation Due to Multiple Development Sites

When the effective slope, under a single area of bushfire prone vegetation, will vary significantly relative to multiple proposed development sites (exposed elements), then the effective slopes corresponding to each of the different

locations, are separately identified. The relevant (worst case) effective slope is determined in the direction corresponding to the potential directions of fire spread towards the subject building(s).

AS 3959:2018 EFFECTIVE SLOPE DETERMINATION - GUIDANCE

The Standard presents a broad set of guidance statements that indicate the intent of deriving an effective slope value for use in calculations, rather than detailing the 'in the field' determination process. These include:

- Highlighting the importance of the value by stating "The slope of the land under the classified vegetation has a direct influence on the rate of fire spread, the severity of the fire and the ultimate level of radiant heat flux" (Clause C2.2.5). [Note: A common rule of thumb is that for every 10 degrees of upslope, a fire will double its rate of spread if moving in the direction of the prevailing wind].
- "It may be necessary to consider the slope under the classified vegetation for distances greater than 100 m in order to determine the effective slope for that vegetation classification) ... (i.e. the vegetation within 100 m) (Clause C2.2.5).
- "Where there is more than one slope within the classified vegetation, each slope shall be individually assessed, and the worst case Bushfire Attack Level shall apply" (Clause 2.2.5).

NSW RFS 2019, PLANNING FOR BUSHFIRE PROTECTION - APPENDIX A1.5 - ADDITIONAL DETERMINATION GUIDANCE

- "In identifying the effective slope - it may be found that there are a variety of slopes covering different distances within the vegetation. The effective slope is considered to be the slope under the vegetation which will most significantly influence the bushfire behaviour for each aspect. This is usually the steepest slope. In situations where this is not the case, the proposed approach must be justified".
- "Vegetation located closest to an asset may not necessarily be located on the effective slope".

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

The effective slopes determined from the site assessment are recorded in Table 3.2 of this Bushfire Management Plan.

Explanation and justification of their determination is presented below.

None required

A1.4: SEPARATION DISTANCE

Measuring

The separation distance is the distance in the horizontal plane between the receiver (building/structure or area of land being considered) and the edge of the classified vegetation (AS 3959:2018, clause 2.2.4)

The relevant parts of a building/structure from which the measurement is taken is the nearest part of an external wall or where a wall does not exist, the supporting posts or columns. Certain parts of buildings are excluded including eaves and roof overhangs.

The edge of the vegetation, for forests and woodlands, will be determined by the unmanaged understorey rather than either the canopy (drip line) or the trunk (AS 3959:2018, clause C2.2.5).

Measured Separation Distance as a Calculation Input

If a separation distance can be measured because the location of the building/structure relative to the edge of the relevant classified vegetation is known, this figure can be entered into the BAL calculation. The result is a determined BAL rating.

Assumed Separation Distance as a Calculation Input

When the building/structure location within the lot is not known, an assumed building location may be applied that would establish the closest positioning of the building/structure relative to the relevant area of vegetation.

The assumed location would be based on a factor that puts a restriction on a building location such as:

- An established setback from the boundary of a lot, such as a residential design code setback or a restrictive covenant; or
- Within an established building envelope.

The resultant BAL rating would be indicative and require later confirmation (via a Compliance Report) of the building/structure actual location relative to the vegetation to establish the determined BAL rating.

Separation Distance as a Calculation Output

With the necessary site specific assessment inputs and using the AS 3959:2018 bushfire modelling equations, the range of separation distances that will correspond to each BAL rating (each of which represents a range of radiant heat flux), can be calculated. This has application for bushfire planning scenarios such as:

- When the separation distance cannot be measured because the exact location of the exposed element (i.e., the building, structure or area), relative to classified vegetation, is yet to be determined.

  In this scenario, the required information is the identification of building locations onsite that will correspond to each BAL rating. That is, indicative BAL ratings can be derived for a variety of potential building/structure locations; or

- The separation distance is known for a given building, structure or area (and a determined BAL rating can be derived), but additional information is required regarding the exposure levels (to the transfer of radiant heat from a bushfire), of buildings or persons, that will exist at different points within the subject site.

The calculated range of separation distances corresponding to each BAL rating can be presented in a table and/or illustrated in Figure 3.2 – whichever is determined to best fit the purpose of the assessment.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

For the subject development/use the applicable separation distances values are derived from calculations applying the assessed site data. They are an output value, not an input value and therefore are not presented or justified in this appendix.

The derived values are presented in Section 3, Table 3.1 and illustrated in Figure 3.2.

A2: BAL Assessment Inputs Applied Using the Method 2 Procedure

STATING AND JUSTIFYING THE METHOD 2 CALCULATION INPUT VARIABLES APPLIED

As 3959:2018 Bal Determination Procedures: AS 3959:2018 establishes the official methodology to determine the radiant heat flux (RHF) a receiver (e.g., a building, structure, person or specified location), will potentially be exposed to from a fully developed bushfire within any adjacent classified vegetation. The methodology accounts for the configuration of a specific site and its surrounds.

The model calculations are complex. Consequently, AS 3959:2018 establishes two pathways to apply the methodology - a simplified procedure (Method 1) and a detailed procedure (Method 2).

Method 1: This procedure has limitations to both its scope and the degree to which site specific conditions can be applied. However, it requires minimal site assessment inputs and provides a standardised output that is satisfactory for many situations.

A moderate level of justification for some of the assessed inputs applied is required. This will demonstrate how the procedure detailed within AS 3959:2018 for Method 1(Section 2) has been followed.

Method 2: This procedure is used when the site conditions are out of the scope of Method 1 or when it is necessary to produce a more specific result. Higher levels of justification will be required for many of the input variables that are able to be modified using Method 2 (AS 3959:2018 Appendix B).

Section A2.1 below identifies the input variables that have been assessed for the proposed development and indicates the level of justification required for their application. The information contained within this Appendix will provide this justification information to the degree necessary.

A2.1: SUMMARY OF CALCULATION INPUTS APPLIED AND THE LEVEL OF JUSTIFICATION REQUIRED

AS 3959:2018 BUSHFIRE ATTACK LEVEL (BAL) DETERMINATION PROCEDURES INPUT VARIABLES FOR THE FIRE BEHAVIOUR AND RADIATION MODELS						
✓	Indicates which site specific variables have been assessed and applied to the assessment of the proposed development/use.	IDENTIFICATION OF THE CALCULATION INPUT VARIABLES ASSESSED AND/OR MODIFIED FOR THE PROPOSED DEVELOPMENT/USE				
	Indicates an AS 3959 methodology or jurisdiction default variable (or a methodology calculated variable in the case of EOR or flame angle). No justification required.					
	Indicates a variable that either must or can have an assessor value applied. Requires justification.					
	Indicates a variable that can have an assessor value applied. Requires detailed justification.	Using Method 1		Using Method 2		
ASSESSOR QUALIFICATION REQUIRED [1]		BPAD Level 1		BPAD Level 3		
LEVEL OF JUSTIFICATION REQUIRED TO APPLY [2]		None	Moderate	None	Moderate	High
Fire weather	Fire danger index (FDI/FFDI/GFDI)			X		
	Wind speed					
	Ambient temperature					
	Relative humidity					
Bushfire Prone Vegetation and slope of the land it grows on	Vegetation classification [3]		X			
	Effective slope		X			
	Understorey and total fuel loads [4]					
	Vegetation height					
	Fuel age					
	Fuel moisture					
Receiver (building) positioning parameters	Site slope					
	Separation distance		X			
	Elevation of the receiver (EOR).					
Bushfire flame parameters	Flame temperature [5]			X		
	Flame width					X
	Flame angle					
	Flame emissivity					
	Heat of combustion					
INTERMEDIATE OUTPUT FROM THE FIRE BEHAVIOUR AND RADIATION MODELS						
Rate of Spread - derived from fuel loads, fuel type, fuel height, FDI, effective slope and wind speed.						
Fire Intensity – derived from fuel loads, rate of spread and heat of combustion [6]						
Path Length – derived from flame angle and separation distance.						
Transmittance – derived from ambient temperature and relative humidity.						
View Factor – derived from flame length, flame width, flame angle, separation distance, elevation of receiver and site slope.						
FINAL OUTPUT OF THE FIRE BEHAVIOUR AND RADIATION MODELS						
Flame Length – derived from fuel loads, ROS (for Forest, Woodland) and fire intensity (for Scrub, Shrubland, Grassland) [6]						
Radiant Heat Flux and the Corresponding Bushfire Attack Level (BAL) – derived from view factor, flame emissivity, flame temperature, transmittance and corresponding to the worst possible flame angle.						
TABLE NOTES (see next page)						

[1] Authority to Use Method 2: Within WA, use of this procedure is restricted to bushfire practitioners who hold the BPAD Level 3 accreditation as issued by the Fire Protection Association Australia (FPAA) through their Bushfire Planning and Design Accreditation Scheme (BPAD Scheme) that complies with the Western Australian Bushfire Accreditation Framework.

[2] Level of Justification Required in Applying Method 2: AS 3959:2018 Appendix B establishes the detailed procedure for the Method 2 determination of BAL(s) as consisting of 10 steps. When justification is required for an assessed variable value to be applied, the required level of justification can vary. The level definitions used in this table are:

Moderate: Requires the provision of readily available and understood argument and evidence such as when:

1. The methodology step requires or allows for an input variable to be a site assessed value; or
2. A methodology step requires a jurisdictionally determined value which the relevant authority may change for different land use scenarios; or

High: Requires a detailed argument, appropriate evidence and justification when:

1. The variable is derived from the methodology step that applies an AS 3959:2018 default value or determines an intermediate output value (i.e. the result of applying a step's equations).

[3] Applying a Different Vegetation Classification: This approach may be justified when certain characteristics of the site's local vegetation complex align with the broad based descriptions of AS 3959:2018, but expert knowledge identifies characteristics that would result in the applied AS 3959 bushfire behaviour model not being properly representative of a fire in the local vegetation. This potential outcome is in part due to the ecological classification of vegetation that is used in AS 3959 rather than a classification more aligned with fuel structure/fire behaviour.

The justification of using a different classification is predicated on the fact that the intent of classifying vegetation in the BAL determination methodology of AS 3959:2018, is to identify the most appropriate fire behaviour model equations to apply.

For example, with respect to contribution to potential fire behaviour, it is often more important to consider vegetation structure rather than canopy cover, yet canopy cover is a key classification factor applied in AS 3959:2018.

Also findings from more recent bushfire behaviour research is not yet incorporated into the current version of the Standard. Certain currently applied bushfire behaviour models within As 3959:2018 are outdated and may under or over predict radiant heat flux and flame length.

[4] Modifying Fuel Loads: Potential steady state maximum fuel loads at a specific site for a given vegetation classification may vary significantly (above and below) from those that are to be applied as the default values in AS 3959:2018.

The Standard only provides the single set of ecological descriptors and corresponding fuel loads that are to be applied to vegetation complexes across Australia, hence its accuracy for all situations will be questionable. The relevant authority for a jurisdiction can establish different fuel loads to be applied.

However, fuel loads for the purposes of determining expected fire behaviour have not currently been determined to the degree necessary in WA, which results in the default values both over and underestimating fuel loads for WA vegetation types. WA DFES in providing advice to decision makers, will currently not accept any assessment and subsequent variation of the default fuel loads. If any variation was to be applied in an assessment, it would need to be argued for based on appropriate evidence and the development of a merit based case to the satisfaction of the decision maker.

The one circumstance where Bushfire Prone Planning will reduce fuel loads is in the calculations associated with a short fire run in forest type vegetation – in which the developing fire will not crown. Therefore, most bark and all canopy fuels can justifiably be excluded from total fuel load.

Note [5] - Flame Temperature: The Guidelines (DPLH, November 2024) establish the requirement to apply 1200 K as the flame temperature to determine an on-site shelter's maximum exposure to radiant heat flux and the corresponding vegetation separation distance, when an on-site shelter is required for vulnerable land use proposals (refer to Guidelines, Appendix B5.2.3 and BPC 8, A2.5). The requirement refers to the guidance presented in the ABCB Design and Construction of Community Bushfire Refuges Handbook 2014 to support the requirement.

Note [6] – Fireline Intensity and Flame Length: These values are determined as intermediate and final outputs of the AS 3959:2018 modelling. Changing these values would not be a valid use of the methodology for a fully developed fire. However, for the circumstance of a developing fire in small patches or corridors of vegetation, there may be justification when an authoritative source is identified to provide an override value.

A2.5: FLAME WIDTH

FLAME WIDTH APPLIED

AS 3959:2018 – BUSHFIRE BEHAVIOUR AND RADIANT HEAT MODELLING - THE DEFAULT FLAME WIDTH

"Flame width is assumed to be 100 metres unless the width of classified vegetation and /or the relative orientation between the classified vegetation and the site justify the use of a lessor value" (AS 3959:2018, clause B8).

The default flame width applied in the AS 3959:2018 modelled bushfire represents a fully developed fire within the specific vegetation type. This is large fire travelling at its potential quasi-steady rate of spread (i.e., after it has undergone its initial growth phase), burning at its maximum intensity and travelling directly towards the subject building/structure. Based on research, it is assumed that the fully developed stage is not reached until the head fire width is at least 100 metres.

SITUATIONS WHERE THE ASSUMPTION OF A FULLY DEVELOPED FIRE MAY NOT PROPERLY REPRESENTATIVE OF THE LOCAL CONDITIONS

Small or narrow parcels of vegetation have less opportunity to support fully developed bushfires because of their limited size. They are a lower threat hazard for which determining the potential bushfire impact requires the modification of expected fire behaviour, including the expected flame width and flame length (height). For flame width there are two types of size constraint:

1. Vegetation Width (Fire Width) Constraint: When the relevant area of classified vegetation is not wide enough for a fire to travel directly towards and arrive at the subject building/structure with a flame width of 100m; and/or
2. Vegetation Depth (Fire Run) Constraint: When the relevant area of classified vegetation is not deep enough to support the spread of a developing fire (directly towards the subject building/structure), for the length of time and distance required to grow into a fully developed fire. This is called a short fire run (SFR).
    - WA DFES currently considers that for a potential fire run to be considered as a SFR a maximum fire run length of 100m is to apply.
    - NSW Rural Fire Service currently considers that for a potential fire run to be considered as a SFR a maximum fire run length of 150m is to apply.

OPTIONS AVAILABLE TO DETERMINE THE REDUCTION IN BUSHFIRE THREAT

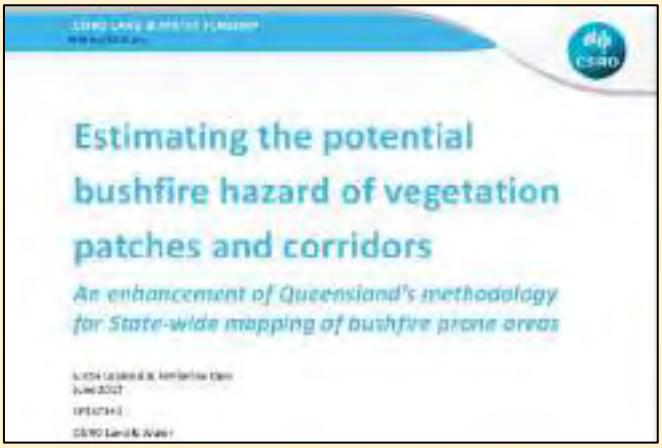
The threat reduction information required is the same as that derived from AS 3959:2018 for a fully developed fire. This is the reduced flame length and radiant heat flux.

1. AS 3959:2018 and the Method 2 procedure for BAL determination does not specifically deal with a developing fire. There is the ability to alter the flame width input variable and the flame length intermediate output variable, however there is no guidance as to how these might be determined.
2. WA DFES has allowed the use of its draft (2016) spreadsheet calculator 'Short Fire Run Head Fire Width Calculation'. However, it has limited application as it cannot determine the reduced flame length. Nonetheless, Bushfire Prone Planning will use this tool to the extent possible where relevant.
3. NSW RFS has developed a short fire run (SFR) methodology. It applies the base AS 3959:2018 methodology for determining potential bushfire impact but "introduces modifications from other accepted science to calculate the reduced fire head width and flame height attributed to lower threat bushfire hazards". Currently however, WA DFES have not informed consultants of its position regarding its application in WA.

EVIDENCE OF THE VALIDITY OF DETERMINING THE REDUCTION IN BUSHFIRE THREATS FROM SMALLER AREAS OF VEGETATION

1. The existence of the SFR methodology developed by NSW RFS. The following is quoted from their Short Fire Run Fact Sheet (v6 2019): "*To date … SFRs are usually assessed as if they are large scale hazards which can often resulting in unrealistic and onerous bush fire protection requirements. Historically … SFRs have been assessed based on expert judgement which can result in an inconsistent approach. This methodology paper provides an overview of the NSW RFS proposal for assessing lower threat bushfire hazards for SFR in bushfire prone areas*".

2. The following information is taken from the CSIRO report that details the improvements made to the Queensland methodology for their mapping of bushfire prone areas. These are applied to account for the reduced bushfire impact from small and narrow areas of vegetation. Bushfire Prone Planning is utilising the applicable guidance provided in this information until such time as the revised Map of Bushfire Prone Areas for WA, based on the same methodology, is released (which will likely see the removal of small and narrow areas of vegetation that are currently mapped as bushfire prone).



Estimating the potential bushfire hazard of vegetation patches and corridors

An enhancement of Queensland's methodology for State-wide mapping of bushfire prone areas

This report describes the improvement to the mapping rules that have been integrated into the spatial modelling process in order to better reflect the spatial complexities of bushfire behaviour for small and narrow patches of hazardous vegetation.

Table 1: Potential Bushfire Intensity classes and corresponding Potential Fire-line Intensity ranges

Potential Bushfire Intensity	*Potential Fire-line Intensity*
1. Very high	40,000+ kW/m
2. High	20,000 – 39,999 kW/m
3. Medium	4,000 – 19,999 kW/m

Mapping rules to estimate hazard of small vegetation patches

The State-Wide mapping methodology (Leonard et al. 2014) also describes spatial procedures that identify and amend the estimated hazard potential of narrow or small patches of vegetation likely to reduce the likelihood that a running fire front will reach its full potential (Gould et al. 2008).

These filtering rules remove or downgrade hazard levels of small patches and narrow corridors in three stages, firstly by merging small patches of a single vegetation class less than 0.5 ha; secondly by merging small vegetation patches between 0.5 and 1 ha with higher or moderate fuel loads (greater than 8 tonnes/ha); and thirdly by removing narrow corridors of vegetation less than 100m wide, through a process



Figure 5. Patch and corridor map processing stages

Step 1 – Remove small isolated patches

Small isolated patches of vegetation are less likely to ignite due to their disconnection with fuels that can carry running fire fronts. They are most likely to be ignited from point sources, which require both distance and area to develop into a fire-front of considerable hazard. If a fire front emerges from a patch of 1 hectare, it is likely to be narrow in width and have significantly lower intensity than a fire front which has had sufficient time and area to develop. The combination of these likelihood and intensity estimates are likely to result in a fire-line intensity less than 4000kW/m, and can be considered a low hazard for the purpose of land use planning to mitigate bushfire risks.

This process removes sub-hectare areas of continuous fuel (that are completely surrounded by either no fuel or discontinuous fuel) if they are further than 100m from any other continuous fuel greater than 2 hectares in size.

Step 2. Downgrade intensity of small patches (0.5 to 3 ha)

Patches of less than 3 hectares in size are less likely to ignite due to their disconnection with vegetation that can carry a running fire front. If ignited, these patches are most likely to be ignited from point sources which require both distance and size to develop into a significant fire front of high intensity.

If a fire front emerges from these patches, it is likely to be narrow in width and significantly less in intensity than a fire front which has had sufficient time and size to develop. The combined effect of both lower ignition likelihood and lower fire-line intensity are reasonably expected to result in a fire-line intensity. It is also significantly less intensity than larger areas of continuous vegetation fire fronts.

Knowledge of fire behaviour and its associated impacts on people and property suggest that fire-line intensity would decrease by two third for patches of 0.5-2 ha, and half for patches of 2-3 ha (Table 2), (Gould et al. 2008).

Table 2. Assumed effect of patch size on fire-line intensity

Patch size	*Approx. patch dimensions*	*Assumed decrease of fire-line intensity*
(a) 0.5 - 2 hectares	100m x 100m – 100m x 200m	66%
(b) 2-3 hectares	100m x 200m – 150m x 200m	50%

Step 3. Remove narrow corridors

Narrow corridors are less likely to ignite due to their disconnection with fuels that can carry a running fire front. If the corridor is ignited by either a point source or line ignition, these areas will limit the width of the fire head and hence fire line intensity. The combination of these likelihood and intensity estimates indicate it is unlikely that a fire line intensity of 4000kW/m would be achieved, and can be considered a low hazard for the purpose of land use planning to mitigate bushfire risks.

This process removes narrow corridors and areas of continuous fuel (2 pixels or less in width – i.e. 50m) that are not sufficiently wide to support a fully developed flame front. It erodes then dilates by one pixel (25m in width) all continuous-fuel patches, in relation to non-continuous areas, as illustrated in Figure 9.

Step 4. Remove small fragments

Because of the varied quality of vegetation mapping inputs, only patches of tree or shrub dominated vegetation greater than 0.5 hectares (or 8 pixels) in size are consistently observed with high confidence. Patches of 1 to 7 pixels are often observed to contain mixtures of different land uses or continuous and discontinuous vegetation. As a consequence, isolated patches of hazardous vegetation less than 0.5 ha in size are not likely to generate a fire-line intensity of 4,000 kW/m or provide high exposure to built assets.

This process removes small areas of hazardous tree or shrub-dominated vegetation (i.e. areas of combined very high, high and medium potential bushfire hazard) of 8 or less pixels (<0.5 ha) by merging vegetation patches into the most prevalent surrounding Bushfire Hazard Class (i.e. Grassfire Prone or Low Hazard).

Relevant Vegetation		Default Flame Width [AS 3959:2018]	Assessed Vegetation Width [refer to image]	Calculated Flame Width [DFES Calculator]	
				Short Fire Run Length [assessed - refer to diagram]	Flame Width
Area	Class	metres	metres	metres	metres
1	Scrub	100	26	26	10

Eligibility Checklist for Application of the Vegetation Width Constraint	
The relevant area of classified vegetation is not wide enough for a fire to travel directly towards the subject building/structure with a 100m flame width.	✓
Eligibility Checklist for Application of the Short Fire Run (SFR) Assessment	
The patch or corridor of vegetation subject to the SFR does not have connectivity to larger parcels of land containing vegetation capable of supporting a fully developed fire. Areas of vegetation will be considered connected if: • Fire spread by flame contact is possible; • Fire spread by ignition from radiant heat is possible; or • Fire spread by large scale ember attack is possible. Disconnection results in the elimination or very significant reduction in the likelihood that sources of ignition could impact the parcel of vegetation subject to the SFR, and simultaneously ignite a flame width of 100m or greater (line ignition) – that would result in significantly less time and distance being required for a fire to fully develop to 100 m width.	✓
A fire in the parcel of vegetation subject to the SFR is most likely to develop from a single point ignition.	✓
Flaming in the patch or corridor of vegetation subject to the SFR will be restricted to surface, near surface and elevated fuels. The fire will not become a crown fire.	✓
The assessed short fire run is on the worst case effective slope and directly at the building/structure.	✓

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

The relevant vegetation area (Area 3 Scrub) is a small patch of unmanaged vegetation in a public open space which is otherwise managed. The local government will manage an additional 6m along the boundary which will increase the separation distance to be 10m from the proposed building. The area is separated from other areas of vegetation by non-vegetated roads and managed lawn areas. Trees are sparse in the area resulting in no canopy connectivity.

Physical Width of Relevant Vegetation:

After installation of the 6m buffer, the area will be significantly reduced in width. A fire in this area cannot be expected to reach the full heat of a scrub fire as calculated in AS3959:2018.

Likely Vegetation Ignition Sources (Justification of Limited Connectivity):

Likely sources of ignition could be ember attack from the nearby scrub, or human activity in the park nearby such as cigarette butts or intentional arson. Ember attack could potentially come from the northwest, west, southwest or southeast directions and is most likely to follow wind directions. Human activity could occur from any direction.

DFES Calculator Input/Output Summary:

Refer to the following page/section.

A3: BAL Calculator – Copy of Input/Output Values

https://bal-calculator.herokuapp.com/practitioner

CALCULATION OF BUSHFIRE ATTACK LEVELS – METHOD 2

Vegetation Classification	D. SCRUB

Method 2 Calculation



Calculated BAL contour distances



Calculated fire length and head width

Short Fire Run Head Fire Width Calculation

Inputs				Outputs	
Fire Run Meters	FDI	Surface Fuel Load	slope	Total Fire length	Head Fire Width
26	80	25	0	26.87	9.52
0				#DIV/0!	#DIV/0!
0				#DIV/0!	#DIV/0!
0				#DIV/0!	#DIV/0!
0				#DIV/0!	#DIV/0!

Equation derived from :
Alexander, M. E. (1985, April). Estimating the length-to-breadth ratio of elliptical forest fire patterns. In Proc. 8th Conf. Fire and Forest Meteorology (pp. 287-304).

NOTE: Draft Only - to be used for A-Forest, B-Woodland and D-Scrub Vegetation Classifications and only for fire runs up to 100m (max)

Disclaimer: DFES will accept the use of the outputs from this draft calculator but reserves the right to withdraw its use at any time.

Scenario 4: Modify the vegetation area and fuel loads by modifying/clearing an area of vegetation adjoining and parallel to the subject lot boundary for a depth of 6 metres.

The modified area must either be:

- Vegetation maintained in a low bushfire threat state, able to be excluded from classification for BAL assessment purposes, managed in perpetuity and for which a formal acknowledgement of responsibility is established.
- Cleared of vegetation and ensure regrowth is not possible e.g. compacted limestone firebreak.

Apply the physically restricted short fire run length of 26 metres to determine the maximum flame width of 9.2 metres using the CSIRO BAL calculator. The reduced flame width value is applied to the BAL calculations.

Outcome: The required separation distance from: The edge of the classified vegetation to construction to achieve BAL-29: and The relevant lot boundary to construction to achieve BAL-29	(a) 10 metres (b) 4 metres



Summary Comments

One of the requirements for being able to justify the use of a short fire run is that the modelled fire in the vegetation will most likely only originate from a single point of ignition rather than multi-point ignition.

Where multi-point ignition is considered possible, from an ember attack from a bushfire burning in neighbouring areas of vegetation, and capable of producing significant ember loads, the application of a short fire run becomes difficult to justify.

For the subject site, it could be argued that there are potential sources of ember attack within the vicinity. However, it is my expert opinion (backed by extensive experience with bushfire events), that any multipoint ignition in the subject small area of vegetation, rather than lead to a more rapid intensification of fire behaviour, will quickly consume the available fuels and therefore constrain the development of a more intense fire.

However, the available fire modelling tools cannot account for this. A decision maker may need to come to a view that also considers expert opinion rather than just the output of a model.

Construction of an assumed single storey building 4 metres from the relevant lot boundary can achieve a BAL-29 rating if there is an acceptable agreement put in place to clear/modify/maintain the necessary adjoining vegetation and the application of short fire run modelling can be adequately justified.

If there is no appetite for vegetation clearing/modification/management on the adjoining lot, the constraint of a small BAL-29 envelope will remain for future development. Otherwise, a future building will need to apply higher levels of bushfire resilient construction.

Figure AD1.1

Method 2 Modelling Measurements

Lot 977 on Plan / Diagram 411195, Area: 1619.53
Nancarrow Way
Ravenswood
Shire of Murray



------ LEGEND ------

- Subject Site
- Cadastral

Classified Vegetation

- Scrub
- Grassland
- Excluded 2,2,3,2 (e)
- Excluded 2,2,3,2 (f)
- 100m Assessment Area
- 150m Assessment Area

Buildings

- Building
- Managed Vegetation
- Hydrants
- Vegetation Distance (m)

0 5 10 15 20 25

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Simone Eaton 20-02-2026
SCALE (A3): 1 : 500

BUSHFIRE PRONE PLANNING

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

From: Greg Delahunty <Gregory.Delahunty@murray.wa.gov.au>
Sent: Wednesday, 21 January 2026 11:46 AM
To: Michael Abrusci <mja@gamacapital.com.au>; Clare McLean <clare@webbplan.com.au>
Cc: Mike Scott <Mike@bushfireprone.com.au>; Chris Geers <chris.geers@mmj.com.au>; Clare McLean <clare@webbplan.com.au>; Ieuan Hook <ieuan.hook@murray.wa.gov.au>
Subject: RE: Planning Response - Lot 977 Nancarrow Way, Ravenswood

Hi Michael and Clare

The Shire will manage the 6m apron inside its reserve boundary ensuring we meet our obligations under the Bushfires Act 1954.

Management actions will reflect those previously discussed with Michael and Mike which will I believe allow the proposed building to achieve a BAL-29.

An initial program will be planned shortly with ongoing maintenance delivered.

Michael, with a view to progressing your proposed application, are you planning on submitting a revised plan based upon feedback previously provided or review prior to lodgement?

Regards.

Greg

Greg Delahunty
Manager Planning and Environment Services

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E: Gregory.Delahunty@murray.wa.gov.au
murray.wa.gov.au

Shire of Murray

PO Box 21, Pinjarra WA 6208.

ADDENDUM 3: LANDSCAPE MANAGEMENT PLAN (ONSITE VEGETATION)

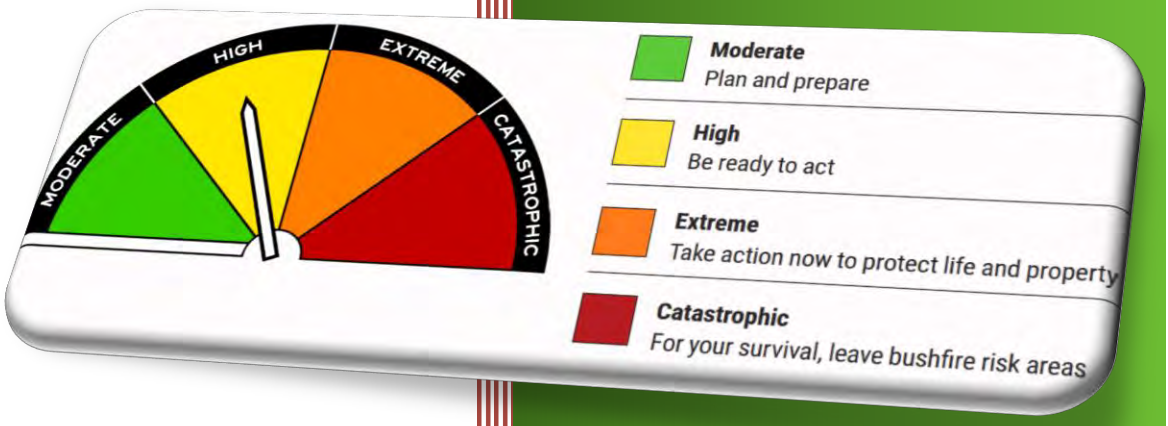
The following landscape management plan applies to the subject site.

LANDSCAPE MANAGEMENT PLAN					
Implementation / Maintenance Action		Timing	Entity Responsible	Clearance	Comment
No.	Description				
1	Maintain compliance with the DFES Fact Sheet – "Preparing Your Property"	Ongoing in Perpetuity	Landowner	☑	
2	All vegetation within the site boundary to be maintained in a low fuel state. TREES: (> 5m in height): trunks at maturity should be a minimum distance of 6 metres from the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2m above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5m apart as to not form a continuous canopy. SHRUBS: No tall shrubs or trees should be located within two (2) metres of the building (unless reticulated – managed gardens). SHRUBS & GROUND COVERS: (0.1 metres to 5 metres) Should not be located under trees or within 3 metres of the building, should not be planted in clumps greater than 5m2 in area, clumps of shrubs should be separated from each other. Shrubs >than 5 metres in height are to be treated as trees. (unless reticulated – managed gardens). GRASS: Synthetic or maintained lawn no higher than 10cm.	Ongoing in Perpetuity	Landowner	☑	
3	Building gutters and rooftops are to be free of excessive twigs, leaves, grass etc.	Every 3 months	Landowner	☑	
4	All overhanging branches, trees, limbs etc. trimmed back from the firebreak/ driveways to a minimum height of four (4) metres.	Every 12 months	Landowner	☑	

Ravenswood Childcare Centre

Bushfire Emergency Plan

The Operational Document for Onsite Personnel Responsible for Emergency Management



PREVENT | PREPARE | RESPOND | RECOVER

Lot 977 Nancarrow Way Ravenswood

Shire of Murray

ATTENTION

It is important that all relevant persons at this facility/premises receive formal training in the application of this Bushfire Plan, as established in the associated Bushfire Management Plan.

Report Date: 4 March 2026

Job Reference No: 260023

COMPANY AND BUSHFIRE CONSULTANT DETAILS	
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Author:	Simone Eaton (BEPAD Level 1 No. 66449)
Reviewed:	Mike Scott (BEPAD Level 3 No. 27795)

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Michael Abrusci	mja@gamacapital.com.au	1.0	1	☐	☒

Limitation of Liability: The procedures and their associated actions contained in this Bushfire Emergency Plan do not guarantee that, in the event of a bushfire, buildings or infrastructure will not be damaged, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required procedures will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control.

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1. STEPS FOR USING THE BUSHFIRE EMERGENCY PLAN

This Bushfire Emergency Plan (BEP) is an operational document to assist management of the facility/premises to protect life and property in the event of a bushfire:

- It establishes the situational scenarios that will trigger the implementation of procedures and associated actions specifically developed for the subject facility/premises.
- It is written concisely and is structured to assist with its effective implementation. Additional reference information is included as appendices.
- Those responsible for actioning this BEP must be aware and knowledgeable (formally trained when necessary), regarding the information presented in the operational sections and the appendices.

Note: When necessary, the specific site/use data and consultant considerations applied in developing the BEP are included as an addendum to explain and justify (support) the actions established by this BEP.

STEP	THE ACTIONS	PAGE
1	For any day of operations, at any time of the year, and whether a bushfire is identified or not, always refer to the PRIMARY GUIDANCE TABLE to establish the INITIAL PROCEDURE to implement.	12
2	Identify the applicable PROCEDURE IMPLEMENTATION TRIGGER and its corresponding INITIAL PROCEDURE. [Note: The trigger and corresponding required procedure, and associated actions have been determined specifically for the subject facility/premises].	
3	Conduct all ACTIONS established by the INITIAL PROCEDURE. The initial procedure, as necessary, will include a RE-EVALUATION of the current situation be conducted. This may result in a change of the procedure to be implemented.	

2. EMERGENCY CONTACTS AND INFORMATION SOURCES

Emergency contact details are subject to change annually, including but not limited to a contact person and telephone number. Emergency contacts shall be checked and updated as part of the annual review process.

- Seek permission to use private phone numbers; and
- Check contact person and contact numbers regularly.

NAME OF ORGANISATION	SERVICE	PHONE # / WEB SITE
Life-Threatening Emergencies	Fire / Ambulance / Police	000
Department of Fire & Emergency Services (DFES)	Emergency Information	13 3337, www.dfes.wa.gov.au
	Head Office (Emergency Services)	+61 8 9395 9300 (Cockburn Central)
	Regional Office (Metro South-East)	(08) 6424 1502
	Regional Office (Metro South-West)	(08) 9780 1900
Total Fire Ban Information Line		1800 679 737
South Yunderup / Ravenswood Bushfire Brigade (DFES Volunteer)	Bushfire Management / Local Fire Response, Ravenswood / South Yunderup area	Via DFES Metro South Coastal Region: (08) 6595 2110 DFES info line: 13 3337 www.dfes.wa.gov.au
Shire of Murray – Emergency Services / Ranger	Local Governance, Firebreak & Hazard Compliance, 1894 Pinjarra Rd, Pinjarra WA 6208	(08) 9531 7777 www.murray.wa.gov.au
Emergency Services WA	Police, fire or ambulance	Phone: 000 www.emergency.wa.gov.au
State Emergency Service (SES)	Various Emergency Services	132 500 www.dfes.wa.gov.au/SES
WA Police	Police matters (Non-emergency)	131 444, www.police.wa.gov.au
Poisons Information line	Poisoning advice 24hrs	131 126, www.aapcc.org.au
Bureau of Meteorology (BOM)	General enquiries	1300 659 210 / 1300 754 389 www.bom.gov.au
Red Cross	Emergency Humanitarian Assistance	1800 733 276, www.redcross.org.au
Salvation Army	State Office	(08) 9260 9500 www.salvationarmy.org.au
Dept. of Transport and Main Roads	Road Conditions	138 138 www.transport.wa.gov.au
Crisis Care (WA 24/7)	Immediate crisis support / referrals	1800 199 008, www.wa.gov.au
Western Power / Horizon Power	Power outages, lines down	13 23 51, www.westernpower.com.au
Transperth	Infoline	13 62 13, www.transperth.wa.gov.au
Peel Health Campus	Hospital / Medical Services, 1 Clifton St, Mandurah WA 6210	(08) 9583 3333 www.peelhealth.wa.gov.au
Perth Children's Hospital	Specialist Paediatric Medical Services, 15 Hospital Ave, Nedlands WA 6009	(08) 6456 2222 www.pch.health.wa.gov.au
Fiona Stanley Hospital	Medical Services, 11 Robin Warren Dr, Murdoch WA 6150	(08) 6152 2222 www.fsh.health.wa.gov.au

BUSINESS CONTACTS:		
TITLE	NAME	PHONE #
Duty Manager	TBD	TBD
TBD	TBD	TBD
TBD	TBD	TBD
TBD	TBD	TBD
TBD	TBD	TBD

3. PLANNED SAFER LOCATIONS AND TRANSPORT – RELOCATION OF PERSONS ONSITE OR OFFSITE

3.1 On-site Locations – Assembly or Shelter

DESIGNATED ON-SITE ASSEMBLY AREA	REFERENCE
Name: Main Building	Refer to Site Emergency Information Map
DESIGNATED ONSITE SHELTER BUILDING	**REFERENCE**
Name: Main Building	Refer to Site Emergency Information Map

3.2 Off-site Locations

CHECK EVACUATION LOCATIONS BEFOREHAND AS LOCATIONS MAY CHANGE. CONTACT: EMERGENCY WA – WWW.EMERGENCY.WA.GOV.AU, DFES – **13 3337 OR WA POLICE 131 444 / '000'**		
NAME OF ORGANISATION	LOCATION	PHONE # / WEB SITE
LOCAL EVACUATION CENTRES		
Offsite Evacuation Centre 1: Lakeside Village	Address: 194 Old Mandurah Road, Ravenswood WA 6208 (approx. 3km distance)	Phone: (08) 9537 8200
Route: Start at Lot 977 Nancarrow Way, Ravenswood. Head west on Nancarrow Way toward Pinjarra Road. Turn left onto Pinjarra Road (State Route 39). Continue south-west on Pinjarra Road for ~1.5 km. Turn right onto Old Mandurah Road. Follow Old Mandurah Road for ~1 km. Arrive at Lakeside Village, 194 Old Mandurah Road, Ravenswood WA 6208.		
Offsite Evacuation Centre 2: Pinjarra Civic Centre	Address: 1915 Pinjarra Road, Meelon WA 6208 (approx. 11km distance)	Phone: (08) 9531 7777
Route: Head west on Nancarrow Way toward Pinjarra Road. Turn left onto Pinjarra Road (State Route 39) and continue south-west. Continue on Pinjarra Road for about 10–11 km into Pinjarra. Pinjarra Civic Centre will be on your right at 1915 Pinjarra Road.		

3.3 Evacuation Time and Transport – Persons and Vehicles

ESTIMATED TIME REQUIRED FOR EVACUATION - INITIATION TO COMPLETION

CONSIDERATION	Estimated Time (Minutes)			
	Less Dependent / Care Persons or Children		High Dependency / Care Persons or Children	
	Own Transport	Provided Transport	Own Transport	Provided Transport
Preparation for evacuation (children, staff and visitors)	-	-	10 mins	-
Travel to furthest designated safe destination	-	-	15 mins	-
When travelling to the furthest designated safe destination, relative safety for persons in vehicles may be attained at an earlier point enroute. When applicable, this shorter time is applied.	-	-	10 mins	-
APPLIED TOTAL	-	-	25 mins	-

PLANNED MAXIMUM PERSON NUMBERS AND VEHICLE SOURCE

	Own Vehicle	Facility Transport	Contract Transport	DETAILS
Children	-	-	32	32 (people)
Staff	14	-	-	14 (people)

4. EMERGENCY INFORMATION SOURCES

THE IMPORTANCE OF BEING AWARE OF YOUR SURROUNDINGS
Know the types of vegetation that grow on surrounding land. Be aware of the potential behaviour of a fire in this vegetation and the threats it can present under different conditions. Knowledge and awareness of the local environment and immediate past and current conditions is a valuable source of information that will assist with decision making – with hot/dry/windy weather presenting the worst conditions. Lookout for smoke (i.e., evidence of fire) within your surrounding landscape, for as far as you can see. Be aware of the current and forecast wind direction as any fire will be likely to spread in the direction to which the wind is blowing.

YOUR FIRE WEATHER DISTRICT (BOM): SWAN COASTAL SOUTH	
SOURCE	**INFORMATION**
Emergency WA emergency.wa.gov.au	This is the primary and most up to date source of information (maps and lists) for: • Current warnings and incidents. • Designated bushfire evacuation Centre. • Fire Danger Ratings (FDR) Total Fire Bans (TFB)
Bureau of Meteorology (BOM) bom.gov.au/wa/forecasts/fire-danger-ratings.shtml	Fire Danger Ratings (FDR) and the corresponding Fire Behaviour Index (FBI).
WA Department of Fire & Emergency Services (DFES) Information Line: 13 3337 (13 DFES) dfes_wa dfeswa dfes.wa.gov.au/hazard-information/bushfire	Republishing of Emergency WA Warnings. General emergency information. Provides overviews of bushfire hazard educational information, including bushfire behaviour and preparation, response, recovery information, and FAQ.
Local Radio Stations ABC (AM/digital) or 6PR (882) abc.net.au/radio/stations	Current bushfire warnings, designated bushfire evacuation Centre and other relevant information.
Emergency Alerts – through automated government telephone warning system	Voice messages (landline) and text messages (mobile) can be sent within a defined area under an immediate threat.
Bushfire.IO bushfire.io	Map based bushfire warnings, bushfire incidents and wind forecasts. A visual tool run privately – crosscheck with other sources.
WA Parks and Wildlife Service dpaw.wa.gov.au Website	Bushfire alerts and warnings, current prescribed burns in national parks.
Main Roads WA Phone: 13 8138 travelmap.mainroads.wa.gov.au/Home/Map	Road alerts and closures (incidents and roadworks).

Figure 1

Site Response Map

Lot 977 on Plan / Diagram 411195, Area: 1619.53
Nancarrow Way
Ravenswood
Shire of Murray

BUSHFIRE WARNING SYSTEM

EMERGENCY WARNING
There is a threat to lives or homes.
You are in danger and need to take immediate action to survive.

WATCH AND ACT
There is a possible threat to lives or homes.
You need to leave or get ready to defend – do not wait and see.

ADVICE
A fire has started but there is no immediate threat to lives or homes.
Be aware and keep up to date.

In Emergency Dial 000
or use EMERGENCY PLUS phone app

EMERGENCY INFORMATION
emergency.wa.gov.au | 13 DFES (13 33 37)
@dfeswa | @dfes_wa | Local ABC Radio

MONTGOMERY PWY
BROADHURST AV
JOLLY RAMBLER BVD
DALKEITH RISE
WILGHI WAY
HOLLOWAY TURN
JONES LANE
NANCARROW WAY
Managed Vegetation
Building
ASSEMBLY AREA
YOU ARE HERE
NANCARROW WAY
JOLLY RAMBLER BVD
AMPHION VIEW
RUTHERFORD VSTA

THE AUSTRALIAN FIRE DANGER RATING SYSTEM
DESCRIBES THE POTENTIAL LEVEL OF DANGER SHOULD A BUSHFIRE START

NO RATING	MODERATE	HIGH	EXTREME	CATASTROPHIC
NO ACTION REQUIRED	PLAN AND PREPARE	BE READY TO ACT	TAKE ACTION NOW TO PROTECT YOUR LIFE AND PROPERTY	FOR YOUR SURVIVAL, LEAVE BUSH FIRE RISK AREAS

EXPECTED BUSHFIRE BEHAVIOUR	Be informed about indicative fire behaviour and potential threat levels of a bushfire within your local vegetation types and corresponding to each forecast Fire Danger Rating. Refer to the relevant appendix of this Bushfire Emergency Plan.

------ LEGEND ------

Subject Site

Evacuation Locations

AA Assembly Area

You Are Here

Evacuation Routes

Primary Evacuation Route

0 10 20 30 40 50

Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Simone Eaton 04-03-2026
SCALE (A3): 1 : 1531

BUSHFIRE PRONE PLANNING

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

Figure 2

Evacuation Routes and Destinations Map

Lot 977 on Plan / Diagram 411195, Area: 1619.53
Nancarrow Way
Ravenswood
Shire of Murray

BUSHFIRE WARNING SYSTEM

EMERGENCY WARNING
There is a threat to lives or homes.
You are in danger and need to take immediate action to survive.

WATCH AND ACT
There is a possible threat to lives or homes.
You need to leave or get ready to defend – do not wait and see.

ADVICE
A fire has started but there is no immediate threat to lives or homes.
Be aware and keep up to date.

In Emergency Dial 000
or use EMERGENCY PLUS phone app

EMERGENCY INFORMATION
emergency.wa.gov.au | 13 DFES (13 33 37)
@dfeswa | @dfes_wa | Local ABC Radio

PINJARRA RD
OLD MANDURAH RD
PINJARRA RD
SETTLERS BVD
LAKESIDE VILLAGE
ASSEMBLY AREA
Building
YOU ARE HERE
NANCARROW WAY
NANCARROW WAY
JOLLUP WAY
WILGHI WAY
THOMASFIELD PL
CORREAS ST
CULEENUP RD
BANKSIA TCE
LAKES CR
PERICHO CL
MURRAY RIVER DR
BLUE GUM WAY
FORREST HWY
LEANDER WAY
SOUTH YUNDERUP RD
LLOYD AV
RODOREDA CR
PINJARRA ROAD
INLET BVD
BLAIR ST
FORREST HWY
TO PINJARRA CIVIC CENTRE - 11 KM
ADAM RD

THE AUSTRALIAN FIRE DANGER RATING SYSTEM
DESCRIBES THE POTENTIAL LEVEL OF DANGER SHOULD A BUSHFIRE START

NO RATING	MODERATE	HIGH	EXTREME	CATASTROPHIC
NO ACTION REQUIRED	PLAN AND PREPARE	BE READY TO ACT	TAKE ACTION NOW TO PROTECT YOUR LIFE AND PROPERTY	FOR YOUR SURVIVAL, LEAVE BUSH FIRE RISK AREAS

EXPECTED BUSHFIRE BEHAVIOUR	Be informed about indicative fire behaviour and potential threat levels of a bushfire within your local vegetation types and corresponding to each forecast Fire Danger Rating. Refer to the relevant appendix of this Bushfire Emergency Plan.

------ LEGEND ------

- Subject Site

Evacuation Locations

- AA Assembly Area
- Evacuation Location
- You Are Here

Evacuation Routes

- Primary Evacuation Route
- Secondary Evacuation Route

0 150 300 450 600 750
Metres

------ LOCALITY ------



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Merctaor Units: Metre
Map by: Simone Eaton 04-03-2026
SCALE (A3): 1 : 14000

BUSHFIRE PRONE PLANNING

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

5. PRIMARY GUIDANCE TABLE – THE INITIAL BUSHFIRE MANAGEMENT PROCEDURE TO IMPLEMENT

PROCEDURE IMPLEMENTATION TRIGGERS SITUATIONAL SCENARIOS RELEVANT TO THE SITE		THE INITIAL PROCEDURE TO IMPLEMENT [1]						
		PREVENT	PREPARE		RESPOND			RECOVER
		No Bushfire Exists			Bushfire Exists or Highest Risk of Existing			
		PRE-SEASON PREPARE	MONITOR & MAINTAIN	PRE-EMPTIVE	ELEVATED THREAT	SAFE (EARLY) EVACUATION	SHELTER-IN-PLACE	RECOVERY
I.D.		Section 6.1	Section 6.2	N/A	Section 6.3	Section 6.4	Section 6.5	Section 6.6
PRIOR TO THE BUSHFIRE SEASON (MAY TO SEPTEMBER)								
A	For this site, this is the period of the year in which a bushfire event is considered to have a lower likelihood of occurrence and the expected fire intensity will be lower. This does not mean a bushfire cannot occur within this period in which case the relevant 'Bushfire Identified' trigger will apply (see below).	☒						
DURING THE BUSHFIRE SEASON (OCTOBER TO APRIL)								
B	A BUSHFIRE IS IDENTIFIED A bushfire EMERGENCY or WATCH AND ACT warning has been issued and applies to the site.					☒		
C	A BUSHFIRE IS IDENTIFIED A bushfire ADVICE warning has been issued and applies to the site.				☒			
D	A BUSHFIRE IS IDENTIFIED A bushfire warning has not been issued.				☒			

PROCEDURE IMPLEMENTATION TRIGGERS SITUATIONAL SCENARIOS RELEVANT TO THE SITE		THE INITIAL PROCEDURE TO IMPLEMENT [1]						
		PREVENT	PREPARE		RESPOND			RECOVER
		No Bushfire Exists			Bushfire Exists or Highest Risk of Existing			
		PRE-SEASON PREPARE	MONITOR & MAINTAIN	PRE-EMPTIVE	ELEVATED THREAT	SAFE (EARLY) EVACUATION	SHELTER-IN-PLACE	RECOVERY
I.D.		Section 6.1	Section 6.2	N/A	Section 6.3	Section 6.4	Section 6.5	Section 6.6
E	A BUSHFIRE IS IDENTIFIED The bushfire is controlled, or the fire front has moved past the facility/premises. Prior evacuation or sheltering in place procedures may have been implemented.							☒
F	NO BUSHFIRE The forecast fire danger rating (FDR) is Catastrophic or Extreme and/or a Total Fire Ban is declared. A Harvest and Vehicle Movement Ban (HVMB) may also be declared.		☒					
G	NO BUSHFIRE The forecast fire danger rating (FDR) is High or Moderate or there is no FDR.		☒					

Note [1]: Each trigger will initially activate a single emergency management procedure. If subsequently an additional or different procedure can or will apply, this will be directed by the required actions of the initial procedure.

6. THE BUSHFIRE EMERGENCY PROCEDURES AND ACTIONS

6.1 Pre-season Prepare

REQUIRED ACTIONS

When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Duty Manager is informed of their completion.

6.1.1 Staff Preparation – Formal Training

Prior to the bushfire season, provide, to all staff, induction and refresher training to the degree necessary and corresponding to the scale and complexity of the facility/premises use.

Training is to consist of:

- Bushfire awareness specific to the site. Establish the necessity to operate and maintain an environment that mitigates the risks to persons and property from the direct threats of bushfire (flame contact, radiant heat, ember attack, surface fire attack) and indirect threats of bushfire threats of bushfire (debris accumulation, consequential fire, wind attack and tree strike);
- Understand the content of the site specific Bushfire Emergency Plan and its application; and
- For staff assigned bushfire emergency management roles, provide the necessary training.

☐ All new and existing staff/employees to complete mandatory training in bushfire awareness and the application of the bushfire procedures and actions contained within this Bushfire Emergency Plan.

☐ Identify and assign the necessary bushfire emergency management roles to appropriate staff and provide training as necessary.

☐ Ensure enough daily rostered staff/employees hold current Senior First Aid Certification.

☐ Conduct simulation drills for evacuation and shelter in place procedures.

6.1.2 Annual Review of the Bushfire Emergency Plan

Update and amend the Bushfire Emergency Plan as required. Assistance from a bushfire consultant is advised. Encourage staff participation

☐ Identify any requirements for reassignment of bushfire emergency management roles for facility/premises personnel.

☐ As necessary, change contact details (names, phone number) of those persons responsible for bushfire emergency management and planning at the facility/premises and any changes in roles.

☐ Make required changes to emergency contacts and emergency information sources. Ensure that any changes are also applied to the bushfire emergency information displayed within the facility/premises.

☐ Ensure the designated assembly area, shelter-in-place building/area and the off-site safer locations and nominated evacuation routes are still the best options. Otherwise incorporate the changes into the Bushfire Emergency Plan and associated displayed information.

- ☐ Where an offsite safer destination is an identified building(s), contact relevant persons to confirm continued availability for potential use during a bushfire emergency.

- ☐ Contact nominated third party transport suppliers to confirm continued availability and capability for potential use during a bushfire emergency.

- ☐ Account for any change to buildings or equipment onsite that has implications for emergency management.

- ☐ Incorporate any improvements or additions to the emergency management procedures/actions that have been identified by staff, emergency services because of either experience with a bushfire event or changes in best practice bushfire emergency management that are developed over time.

- ☐ In the event any part of this BEP is amended as part of its annual review, replace old copies and destroy them.

6.1.3 Availability and Display of Bushfire Emergency Information

Bushfire Emergency Information is to be available and displayed in prominent position/s and readily accessible to all persons.

- ☐ Ensure all emergency signage is in place and legible.

- ☐ Ensure the following bushfire emergency information (updated as necessary) is displayed (framed or laminated) within the relevant buildings (including near an assembly area and inside the designated 'shelter in place' building.

    - The Site Emergency Information Display Map
    - The Evacuation Routes/Destinations Display Map
    - The Emergency Contacts.
    - The Bushfire Information Sources to Monitor

    Additional information can be displayed when considered appropriate. Examples are contained within the appendices. Copies of these resources are available for download on the DFES website.

- ☐ Have available copies of the current Bushfire Emergency Plan in locations accessible by the facility/premises persons with bushfire emergency responsibilities.

- ☐ Have available the updated contact details for parents and guardians.

- ☐ Ensure availability and supply of 'Persons in Shelter-in-Place Building Record' sheets or equivalent staff and child register as per centre operating guidelines. Assign the person/s responsible for maintaining the record in the event of an emergency.

6.1.4 Building and Equipment Preparation

These actions address the required preparation of the buildings that comprise the facility/premises, prior to and during the bushfire season to ensure:

- Continued compliance with the construction standards that correspond to its Bushfire Attack Level (as determined in the Bushfire Management Plan);
- The vulnerability of exposed building elements and associated items are minimised; and
- That any installed firefighting infrastructure is operationally ready.

☐ If the facility/premises is constructed to BAL-12.5 requirements or higher, ensure any external gaps continue to be blocked or screened with non-combustible material (e.g. rock wool, sealant, mesh – maximum aperture of 2mm) to prevent ember entry. This includes under eaves, external cladding, roofs, external vents, skylights etc. Otherwise, it is recommended that this action is applied.

☐ Check that all required window and door screening is in place (prevents ember entry to internal spaces and reduces radiant heat load).

☐ Where additional construction of attached structures (decks, stairs, patio, carport etc.) or adjacent structures (dwelling, shed, carport etc.) have been built, ensure bushfire resistant (including non-combustible) materials have been used to the greatest extent possible (at least corresponding to construction standards for the BAL rating).

☐ All gas cylinders to be installed and maintained in accordance with AS 1596. This standard includes requirements for small portable cylinders and larger cylinders used for domestic house supply. These include:

- Safety release valve shall be directed away from the building and persons access/egress routes;
- Metal piping and fittings shall be used on all piping inside the building's cavities and enclosable occupied spaces and the high-pressure side of any gas regulators; and
- Tethers securing cylinders are to be non-combustible.

The objective is to reduce the risk of local fire against a building and reduce the risk of death or injury, from gas flaring or explosion. The rationale is gas cylinders which have either flared or ruptured are commonly found in post bushfire surveys. The heat from the bushfire or consequential local fire has been sufficient to cause their pressure to reach critical levels beyond which their pressure release valve releases large quantities of LP gas. If these gas cylinders fall over, this pressure release valve may no longer function correctly, meaning that the gas cylinder may continue to increase in pressure with continued heating until the cylinder ruptures. The resulting explosion includes a pressure wave and large ball of flame which can threaten nearby life and buildings.

☐ Around building(s), including veranda's and decks, remove or relocate away from the facility/premises those combustible items that may be seldom used or able to be stored more appropriately in the bushfire season. This includes furniture and mats. Refer to Appendix 7 'LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY' for further information regarding consequential fire fuels and recommended separation distances.

☐ Ensure all first aid equipment and supplies are stocked, current and accessible.

☐ Ensure facility/premises personnel with emergency management roles have mobile phones.

☐ Ensure the designated Shelter-in-Place Building is stocked with adequate supplies of drinking water.

☐ Ensure all emergency lighting including pathway lighting and signage lighting is fully functional.

6.1.5 Grounds Preparation

These actions address the required management of onsite combustible items/materials (fuels) around, on or in buildings. By removing or reducing fuels, the likelihood and intensity of consequential fire is significantly reduced. Fuel management must be completed prior to the start of the bushfire season and maintained during the season.

For additional guidance, refer to:

- The Guidelines for Planning in Bushfire Prone Areas within the Explanatory Notes for Element 2 of the Bushfire Protection Criteria and Schedule 1: Standards for Asset Protection Zones (WAPC 2021);
- The DFES 'Bushfire Preparation Toolkit' publication. Website: publications.dfes.wa.gov.au/?hazard=Bushfire; and
- Where initial or renovation landscaping of grounds surrounding the facility/premises is being conducted, apply the directions and principles of the measures presented in Appendix 7 to the greatest extent possible.

☐ The Firebreak Notice: Maintain compliance with the local government's annual firebreak and fuel load notice issued under section 33 of the Bush Fires Act 1954. Where the requirements are additional to or provide a greater level of bushfire protection than those established in this Emergency Plan, they must be complied with.

☐ Accessibility:

Ensure all property access/egress routes are kept clear and easily trafficable.

☐ The Asset Protection Zone(s) (APZ) Dimensions:

Ensure the APZ dimensions established by the BMP and Addendum are installed and maintained to the required standard (as established by the Bushfire Management Plan and Addendum), and including the requirements in this action list:

☐ Vegetation in the APZ – trimming and removal of accumulated debris:

Trees (greater than 6 metres in height):

- Remove branches overhanging buildings and power lines;
- Remove lower branches to a height of 2m above the ground or any surface vegetation; and
- Remove loose bark (rake) to at least a height of 2m above the ground or any surface vegetation.

Shrubs (0.5 metres to 5 metres in height) and ground covers (greater than 0.5 metres in height):

- Ensure location and clump sizes remain in accordance with guidance in Appendix 7; and
- Remove all dead plant material.

Grass to be reduced and maintained at a height of 50 mm.

Fine Fuels (i.e., less than 6 mm in thickness):

- Ensure combustible dead vegetation matter is reduced to and maintained at less than 2 t/ha on average. Collecting and weighing an indicative 1m^2 of this litter above the mineral earth will indicate the fuel load (100g/m^2 = 1 t/ha); and
- Remove all debris piles.

Heavy Fuels (i.e., greater than 6 mm in thickness):

- Such as fallen branches, timber, firewood, packaging materials, building materials, outdoor furniture, garbage bins, debris piles.
- To be removed from the APZ or be separated from buildings/structures in accordance with guidance in Appendix No. 7. All fixed playground and activity equipment to remain in place.

Applied mulches:

- Should be non-combustible e.g., stone, gravel and crushed rock. Where wood mulch is used it should be greater than 6mm in thickness.

☐ Buildings and Removal of Accumulated Debris:

Remove and maintain at low levels, accumulated vegetation debris (fine fuels) in proximity to buildings and structures, including:

- In construction crevices, gaps, on horizontal / shallow angle surfaces and at re-entrant corners in access ways, at wall/floor, wall/ground, roof/wall junctions and around doors, vents, windows;
- In roof gutters and valleys.

6.2 Monitor and Maintain

REQUIRED ACTIONS
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Duty Manager is informed of their completion.

6.2.1 Monitor Bushfire Information Sources

☐ Be aware of your surroundings:

- High temperatures and winds and low humidity will increase the threat levels of bushfire attack mechanisms and its potential impact.
- Regularly scan the broader region in all directions, for any smoke that might indicate the ignition or existence of a bushfire.

If a potential bushfire is noticed and it is not yet been identified by emergency information sources, then report the fire by calling '000'. Refer to the 'Primary Guidance Table' for the relevant procedure to action.

☐ Regularly monitor the relevant 'Emergency Information Sources' for current information regarding Bushfire Warnings, Fire Danger Ratings (FDR), Total Fire Bans (TFB) and Harvest Vehicle Movement Bans (HVMB).

Check after 4.00pm for next day FDR, TFB and HVMB. Fire Danger Ratings (FDR), Total Fire Bans (TFB) and Harvest Vehicle Movement Bans (HVMB).

Refer to the 'Primary Guidance Table' to check if a 'Procedure Implementation Trigger' incorporates these warnings, ratings and bans.

TFB: A TFB can automatically exists when higher Fire Danger Ratings apply, or they are declared by the Department of Fire and Emergency Services (DFES) on days when fires are most likely to threaten lives and property due to adverse weather conditions or when widespread fires are stretching firefighting resources. During a TFB it is illegal to carry out any activity in the open air likely to cause a fire. Refer to the DFES website for ban details.

HVMB: Harvest and Vehicle Movement Bans are declared by the local Bushfire Control Officer and may impose a ban on the use or operation of engines, vehicles, plant, or machinery. They are imposed to restrict activities that are likely to cause a bush fire or contribute to the spread of a bush fire when the expected weather conditions indicate that if a wildfire was to start, it would be dangerous, destructive and difficult to stop once started. They can be issued for any period during a day and in conjunction with a TFB. Refer to the DFES website for ban details.

6.2.2 Maintain Buildings and Fire Fighting Equipment

☐ Ensure the designated Shelter-in-Place Building is stocked with adequate supplies of water.

☐ Ensure all mobile phones and any radio communication devices are fully charged.

☐ Refer to the 'Action List No. 4 in the 'Pre-Season Prepare' procedure to identify any actions that may not have been conducted or completed and ensure they are actioned.

6.2.3 Maintain Asset Protection Zones

REQUIRED ACTIONS

Maintain Asset Protection Zones (APZ) around all buildings in accordance with the associated Bushfire Management Plan and Addendum (BMP) which establishes the dimensions of the APZ for the relevant buildings on this site. Refer to the 'Action List No. 5 in the 'Pre-Season Prepare' procedure for dimension details.

The required actions remove/reduce accumulated onsite vegetative materials (fuel) and other fuels, thereby reducing the likelihood and intensity of consequential (local) fire which is the most significant cause of building/structure damage/loss in bushfire events.

- ☐ Remove all accumulated vegetation debris from the land surface within the APZ, including any stored piles of debris.

- ☐ Remove all accumulated vegetation debris from on, in and against buildings/structures.

- ☐ Ensure heavy consequential fire fuels (i.e., greater than 6 mm in thickness) are removed from the APZ or are separated from buildings/structures in accordance with guidance in Appendix 7 Landscape Design and Construction.

  These fuels include fallen branches, timber, firewood, packaging materials, building materials, outdoor furniture, garbage bins etc. All fixed playground and activity equipment to remain in place.

- ☐ Refer to the 'Action List No. 5 in the 'Pre-Season Prepare' procedure to identify any actions that may not have been conducted or completed and ensure they are actioned.

6.3 Elevated Threat Procedure

REQUIRED ACTIONS
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Duty Manager is informed of their completion.

6.3.1 Situation Check

☐ If you have identified a bushfire but are unaware if a bushfire warning has been issued, check the bushfire warning status from an information source (refer to Section 4: Emergency Information Sources).

If a warning has not been issued, report it by calling triple zero '000'.

☐ Try to locate the position of the bushfire on the Evacuation Route/Destinations Map, or other suitable map, and identify the direction of the fire movement. Be aware:

- Of the local wind and the direction it is blowing, as this will indicate the direction the flame front is likely to be moving in.
- That there may be several bushfires.
- That a bushfire moving directly away from the facility/premises presents a lower threat.

☐ If possible, identify if the fire is moving towards any designated evacuation routes and its proximity to these routes. This information will be important in making the correct evacuation route decisions should this become necessary.

☐ Persons on-site must take some responsibility for making an informed assessment of the current local situation. There may be no other information or persons available, and they are likely to be the most aware due to proximity.

Be informed. Refer to Appendix 6 'Indicative Bushfire Behaviour' in the Bushfire Emergency Plan for the following information:

- The local bushfire prone vegetation types and the type of fire behaviour you can expect and the severity of those behaviours (threats) corresponding to your current forecast Fire Danger Rating.

6.3.2 Monitor Bushfire Information Services

☐ Continue to monitor relevant information sources for updated information. If a Bushfire Warning is issued or the existing Bushfire Warning is changed to a higher level, this may trigger the implementation of a different bushfire emergency procedure – refer to the 'Primary Guidance Table'.

6.3.3 Precautionary Evacuation

☐ Commence the 'Safe (Early) Evacuation Procedure' if the precautionary approach of commencing a very early evacuation is:

Ordered by an emergency services authority.

No bushfire warning has been issued and no emergency services are present, but the Responsible Person on site is concerned about their safety.

6.3.4 Inform Persons On-site

- ☐ Inform all staff that a bushfire warning exists for the location (or a bushfire has been identified) and the requirement to initiate the Elevated Threat Procedure.
- ☐ Make all staff aware of the location of the displayed bushfire emergency information. Encourage to read and take any necessary preparatory actions – including having belongings ready to move at short notice.
- ☐ Inform all staff of the designated evacuation destinations and shelter in place building or area.
- ☐ Inform all staff that no further actions are required by them at this stage. Further instructions will be given if the situation gets worse.
- ☐ Continue to keep all persons informed, including notifying when the bushfire threat no longer exists.

6.3.5 Facility / Premises Preparedness

- ☐ If practicable, and not recently been conducted as part of the 'Monitor and Maintain Procedure', remove from the APZ:

  Accumulated vegetation debris from the land surface within the APZ, including any stored piles of debris.

  Accumulated vegetation debris from on, in and against buildings/structures.
- ☐ Move heavy consequential fire fuels such building materials, packaging materials, firewood, branches, sporting/playground equipment, outdoor furniture, garbage bins and mats at least 6 metres away from buildings/structures and access/egress paths, unless they are enclosed. All fixed playground and activity equipment to remain in place.

6.4 Safe (Early) Evacuation Procedure

REQUIRED ACTIONS
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Duty Manager is informed of their completion.

IMPORTANT: DO NOT EVACUATE LATE
Analysis of past events identify that most people who die in bushfires are caught in the open, either in vehicles or on foot, because they have left their property too late. Being in vehicles on roads when a bushfire is close is a high risk action. For evacuation to be the safest response, it must be conducted early. Otherwise, sheltering-in-place is likely to provide greater protection to persons – particularly when a suitable onsite shelter building or area has been identified in the Bushfire Emergency Plan.

6.4.1 Cease Facility / Premises Operations

- ☐ Cease all outdoor activities.
- ☐ Ensure any flammable materials are stored in the dangerous goods store or a designated storage area.
- ☐ If time permits - check perimeter of all buildings and store inside all combustible, easy to move outdoor mats and furniture otherwise move them well away from buildings.

6.4.2 Instruct All (Relevant) Persons On-site to Move to the Designated Assembly Area

- ☐ Inform all persons onsite of the conditions that exist and have triggered the requirement to initiate the Safe (Early) Evacuation Procedure.
- ☐ Instruct all persons onsite to move to the Designated Assembly Area (except those with specific bushfire responsibilities). Communicate instructions loud and clearly. Inform that briefing will take place once assembled.
- ☐ Keep all driveways clear for emergency vehicles.
- ☐ Account for all persons onsite. Do not assume any room is empty – check!

6.4.3 At Assembly Area

- ☐ Inform persons at the Assembly Area of the possible evacuation routes and that the decision regarding which route/s to use will be made shortly after conducting a situation check and assessing their availability.

6.4.4 Organise Facility / Premises Transport

- ☐ Organise facility/premises onsite vehicles to be utilised in evacuation to be moved near assembly area. Keep all driveways clear for emergency vehicles.

6.4.5 Situation Check

Persons on-site must take some responsibility for making an informed assessment of the current local situation. There may be no other information or persons available, and they are likely to be the most aware due to proximity.

☐ If you have identified a bushfire but are unaware if a bushfire warning has been issued, check the bushfire warning status from an information source (refer to Section 4: Emergency Information Sources).

If a warning has not been issued, report it by calling triple zero '000'.

☐ Try to locate the position of the bushfire on the Evacuation Route/Destinations Map, or other suitable map, and identify the direction of the fire movement. Be aware:

Of the local wind and the direction it is blowing to, as this will indicate the direction the flame front is likely to be moving in.

That there may be several bushfires.

That a bushfire moving directly away from the facility/premises presents a lower threat.

☐ Be informed. Refer to Appendix 6 'Indicative Bushfire Behaviour' in the Bushfire Emergency Plan for the following information:

The local bushfire prone vegetation types and the type of fire behaviour you can expect and the severity of those behaviours (threats) corresponding to your current forecast Fire Danger Rating.

The potential for the local terrain to increase adverse fire behaviour including flame heights, forward rates of spread and ember production (in relevant vegetation i.e., primarily bark fuels). Essentially, where vegetation exists on sloping land near your site, assume that the higher end of adverse fire behaviours is much more likely to apply.

When a bushfire is close to the facility/premises and/or evacuation routes, exercise greater situational awareness, judgement and caution as the margin of safety is less.

You may not have enough time to initiate and fully complete the evacuation procedure, depending on the bushfire's direction and speed of movement and its location relative to the facility/premises and the evacuation routes.

Evacuating a proportion of occupants with the remainder sheltering in place may be a necessary outcome. The decision to evacuate must be continually evaluated based on an informed analysis. Ensure that you consider the following factors.

Utilise the information provided in this BEP to assist with your decision making, including Appendix 6 **'Indicative Bushfire Behaviour To Impact the Facility/Premises'**. Prior to the bushfire season, training in the use of this BEP is important preparation for an emergency event.

NOTE:

Consider the context of the site and the availability of 'on the ground knowledge' of the current situation. A bushfire is a dynamic emergency with many variables. Your knowledge of the immediate situation is important information to use in the application of best practical judgement.

Consider variations in the facility/premises operational routines that can impact the length of time to initiate and complete the evacuation procedure **– including informing and preparing occupants. Refer to Section 5.3 'Evacuation** Time and Transport **–** Pers**ons and Vehicles'.**

☐ Check again the current Bushfire Warning level using the bushfire emergency information sources.

☐ Follow the specific direction/advice of emergency services personnel if they are present on the site.

☐ Conduct the evaluation on the following page.

6.4.6 Leaving the Facility or Premises and Checks

☐ Notify emergency services by calling triple zero (000) that the decision has been taken to evacuate the facility/premises. State the intended destination, numbers of persons and the means of transport.

☐ If the offsite safer destination is a building, notify relevant persons informing them of impending arrival. State the numbers of persons and the means of transport.

☐ Shut down all mechanical ventilation and air conditioning.

☐ Shut off gas at the meter or bottles if gas is plumbed into the building.

☐ Ensure all doors and windows of all buildings are closed but left unlocked.

6.4.7 Re-evaluate the Situation Before Making the Decision to Evacuate

<table>
<tr><th>EVALUATION</th><th colspan="2">RESPONSE</th></tr>
<tr><td rowspan="2">Evaluation No.1:
Is the controlling agency of the emergency services in contact with you or are emergency services personnel in attendance at your facility/premises?</td><td>YES</td><td>Conduct Evaluation No.2.</td></tr>
<tr><td>NO</td><td>Conduct Evaluation No.3.</td></tr>
<tr><td rowspan="2">Evaluation No.2:
Have the attending emergency services specifically instructed you to either evacuate or shelter in place?</td><td>YES</td><td>Implement the Procedure they have instructed.</td></tr>
<tr><td>NO</td><td>Conduct Evaluation No.3.</td></tr>
<tr><td rowspan="2">Evaluation No.3:
Does a safe evacuation route remain available to use?
The route must not be impacted or likely to be imminently impacted by the bushfire, including by smoke. This condition can be met if:
Any effects of the bushfire will be a sufficient distance away from the evacuation route; or
The route will require driving directly away from the existing bushfire; or
The bushfire is moving away from the evacuation route.</td><td>YES</td><td>Commence the Safe (Early) Evacuation Procedure.
Be aware the procedure may have to be stopped for some persons if the continued availability of a safe evacuation route is threatened.</td></tr>
<tr><td>NO</td><td>Commence the Shelter In Place Procedure</td></tr>
</table>

6.4.8 At The Evacuation Destination – Offsite Safer Place

☐ Account for all persons.

☐ Call triple zero (dial 000) to notify emergency services of arrival at the evacuation destination and the status of all persons.

6.5 Shelter In Place Procedure

REQUIRED ACTIONS
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Duty Manager is informed of their completion.

DESIGNATED ON-SITE ASSEMBLY AREA	REFERENCE
Name: Main Building	Refer to Site Emergency Information Map
DESIGNATED ONSITE SHELTER BUILDING	**REFERENCE**
Name: Main Building	Refer to Site Emergency Information Map

6.5.1 Situation Check

☐ If you have identified a bushfire but are unaware if a bushfire warning has been issued, check the bushfire warning status from an information source (refer to Section 4: Emergency Information Sources).

If a warning has not been issued, report it by calling triple zero '000'.

☐ Try to locate the position of the bushfire on the Evacuation Route/Destinations Map, or other suitable map, and identify the direction of the fire movement. Be aware:

Of the local wind and the direction it is blowing to, as this will indicate the direction the flame front is likely to be moving in.

- That there may be several bushfires.
- That a bushfire moving directly away from the facility/premises presents a lower threat.

6.5.2 Cease Facility / Premises Operations

☐ Cease all outdoor activities.

☐ Ensure any flammable materials are stored in the dangerous goods store or a designated storage area.

☐ If time permits - check perimeter of all buildings and store inside all combustible, easy to move outdoor mats and furniture otherwise move them well away from buildings.

6.5.3 Instruct All Persons On-site to Move to the Designated Assembly Area

☐ Inform all staff onsite of the conditions (FDR, Bushfire Warning etc.) that exist and have triggered the requirement to initiate the Shelter in Place Procedure.

☐ Instruct all persons onsite to move to the Designated Assembly Area (except those with specific bushfire responsibilities). Communicate instructions loud and clearly. Inform that briefing will take place once assembled.

☐ Assemble on foot- do not bring vehicles or luggage. Only bring mobile phone, other communication devices, required medicines, health/mobility aids and water.

☐ Account for all persons onsite. Do not assume any room is empty – check!

6.5.4 Re-evaluate the Situation

EVALUATION	RESPONSE	
Evaluation No.1: Are emergency services personnel in attendance at your facility/premises?	YES	Conduct Evaluation No. 2
	NO	Continue the Sheltering-in-Place Procedure if unsafe to evacuate.
Evaluation No.2: Have the attending emergency services specifically instructed you to evacuate despite being made aware of the risk/challenges of moving the children	YES	Commence the Safe (Early) Evacuation Procedure.
	NO	Continue the Sheltering-in-Place Procedure if unsafe to evacuate.

6.5.5 Management of the Designated Shelter in Place Building

☐ Shut off gas at the meter or bottles if gas is plumbed into the building.

☐ Move furniture/combustible materials as far away from windows as possible. Fill any available containers, (e.g. sinks, baths, bins) with water. Wet materials (e.g. towels, sheets, woollen blankets) and place alongside doors/windows to block any gaps.

☐ While conditions outside are not subject to excessive radiant heat, embers or smoke (i.e. tenable), keep accessible doors and windows open as necessary to manage internal conditions.

Close all doors, windows, vents, blinds, curtains and bushfire shutters (if fitted) once all persons are required to be within the designated shelter-in-place building.

☐ While conditions outside are still tenable, two persons, if wearing appropriate protection from bushfire, are to make regular exterior inspection for embers and ignition of small local fires and extinguish where possible.

6.5.6 Management of Persons

☐ When conditions outside the designated shelter-in-place building are no longer tenable, all persons must move inside.

☐ Shelter in areas furthest from the fire front but ensure some visibility to what is happening outside is available, that two ways of accessing the outside is available if conditions inside become untenable and if possible, a water supply is available (e.g. laundry).

☐ Drink plenty of water to avoid becoming dehydrated.

- ☐ Shelter within the building for as long as possible.

6.5.7 Notify Emergency Services

- ☐ Notify emergency services by calling triple zero (000), that the decision has been taken to shelter in the designated Shelter-in-Place Building.
- ☐ Describe the designated Shelter-in-Place Building and state its location (street address and site position as relevant).
- ☐ State the number of persons sheltering and if any special needs persons.
- ☐ Describe current bushfire observations – distance / direction / flames / embers / smoke / spot fires.
- ☐ Notify emergency services by calling triple zero (000) if the situation changes regarding conditions being experienced, number of persons sheltering and when the bushfire is no longer presenting a threat.

6.5.8 Monitor

- ☐ Continue to monitor the progress of the bushfire through windows. Be aware of what is happening to assist with decision making and informing emergency services.
- ☐ Monitor the relevant Emergency Information Sources for updated information.
- ☐ Monitor the health condition of any 'at risk' persons.

6.5.9 After Passage of the Fire Front

- ☐ Be aware of any embers or fires starting in materials close to the building. Designated onsite responsible persons to use available water supplies to douse the embers/fires if necessary.
- ☐ If necessary, cautiously begin to open windows to maintain tenable conditions inside.
- ☐ If necessary, follow centre procedures for structural fire or move to the designated "off-site evacuation location" (or an area that has already burnt) if the building catches fire and conditions inside become untenable.

6.6 Recovery Procedure

REQUIRED ACTIONS
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Duty Manager is informed of their completion.

6.6.1 For Persons Sheltering Onsite and the Bushfire is Controlled or the Front Has Passed

- ☐ Always follow the directions of emergency services personnel.
- ☐ If you have been sheltering in a building and if necessary, cautiously begin to open windows to maintain tenable conditions inside.
- ☐ If necessary, follow centre procedures for structural fire or move to the designated "off-site evacuation location" (or an area that has already burnt) if the building catches fire and conditions inside become untenable.
- ☐ If persons are in discomfort, consider evacuation if a route is available. Seek medical assistance for those requiring it e.g. smoke inhalation.
- ☐ Monitor building/s and surrounds for any ignition of combustible material. Be prepared to initiate the Evacuation Procedure if necessary and an evacuation route is available.
- ☐ Be aware of any embers or fires starting in materials close to the building. Use available water supplies to douse the embers/fires if necessary

6.6.2 For Persons Evacuated to a Safer Offsite Destination

- ☐ Always follow the directions of emergency services personnel.
- ☐ Seek medical assistance for those requiring it.
- ☐ No person is to re-enter any evacuated building or site until advised by the relevant emergency service that it is safe.
- ☐ The facility/premises management is to arrange inspection of the site to ensure a safe environment before return of any persons.
- ☐ The facility/premises (Duty Manager) is to arrange the movement of occupants back to the facility/premises and/or their respective accommodation.
- ☐ All occupants must be accounted for on their return using the relevant sign-in procedure used by the centre.

APPENDIX 1: BUSHFIRE WARNINGS - WHEN A BUSHFIRE IS IDENTIFIED



APPENDIX 2: FIRE DANGER RATINGS - FORECAST BUSHFIRE RISK

THE HIGHER THE RATING, THE MORE DANGEROUS THE CONDITIONS AND THE GREATER THE CONSEQUENCES IF A FIRE STARTS.





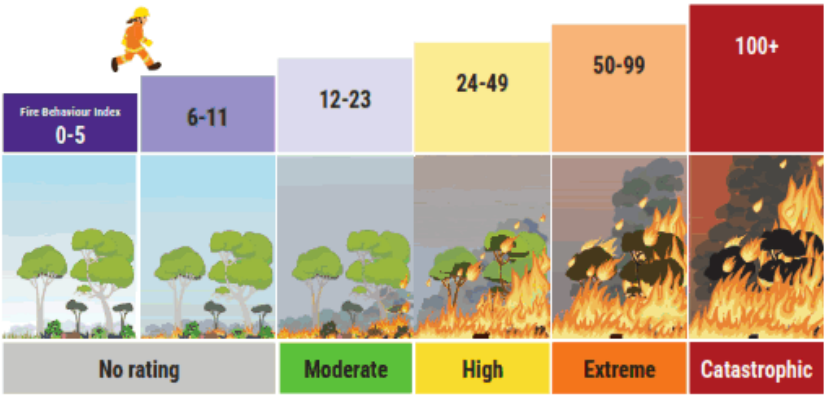
While the AFDRS Fire Danger Ratings are primarily intended for community messaging, the Fire Behaviour Index is intended to support operational fire management decision making.

Features of the FBI:

A Fine Scale of Fire Behaviour	The FBI is expressed in whole numbers from 0 to100+. As the FBI rises, the more dangerous a fire that stars will become.	Takes advantage of decades of improved understanding of fire behaviour, fuels and fire weather.
Stepped Categories	Links transitions in fire behaviour to implications for operational decision making.	Turns the FBI into a powerful operational tool and takes advantage of improved understanding of relationship between fire behaviour, fire spread, suppression and impacts.
Fuel Type Specific	Eight different Fire Behaviour Indexes based on eight different fire behaviour models.	Takes advantage of decades of improved knowledge of fire behaviour in different fuels to produce more specific results.
Nationally Consistent	The index is the same anywhere in Australia.	Supports cross border operations and resource sharing.

The Stepped categories are controlled by tables that define FBI thresholds. The thresholds represent changes in the underlying fire behaviour that have consequences for fire operational decision making, including:

- Indicative fire behaviour and fire weather.
- Implications for prescribed burning.
- Fire suppression and containment strategies that are appropriate.
- Potential for impact on life, property and infrastructure.



For more information visit afac.com.au/initiative/afdrs
or email AFDRS@dfes.wa.gov.au

DFES
HOW FIREPROOF IS YOUR PLAN?
AFDRS



BUSHFIRE RISKS AND DANGERS

BUSHFIRES HAPPEN EVERY SUMMER; THEY CAN START SUDDENLY AND WITHOUT WARNING.
If you live in or near bushland you need to understand the risks and dangers that bushfires cause.
Remember that flames are not the only risk you face in a bushfire.

EMBER ATTACK

Ember attack occurs before, during and after a fire front passes.

Embers are pieces of burning bark, leaves or twigs that are carried by the wind around the main fire creating spot fires.

Spotting can be carried over half a kilometre from a fire.

Embers can land in areas around your home such as your garden, under or in the gutters of your home and on wooden decks.

If not extinguished, your house could catch fire.

RADIANT HEAT

The hotter, drier and windier the day, the more intense a bushfire will be and the more radiant heat it will generate.

Radiant heat can cause injury and death from burns and cause the body's cooling system to fail, leading to heat exhaustion and possible heart failure.

It is important that you include water and appropriate clothing in your emergency kit and consider where you will shelter during a bushfire to protect yourself from radiant heat.

SMOKE

Lung injuries and suffocation can occur where the body is exposed to smoke and super-heated air.

It is important to seek shelter when heat and smoke are most intense.

Your nose and mouth should be covered with a dust mask, wet towel or scarf.

A special filter mask should be included in your survival kit for people in your family who suffer respiratory conditions such as asthma.

For more information visit
dfes.wa.gov.au/bushfire
or contact DFES Community Preparedness:
Community.Preparedness@dfes.wa.gov.au
or **9395 9816**

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September/2020/V1.0

GOVERNMENT OF WESTERN AUSTRALIA
DFES Department of Fire & Emergency Services

HOW FIREPROOF IS YOUR PLAN?

APPENDIX 5: GUIDELINES FOR TRAVELLING IN CARS DURING A BUSHFIRE



TRAVELLING DURING A BUSHFIRE

BUSHFIRES CAN START WITHOUT WARNING. People have been killed or seriously injured during bushfires. If you are travelling or staying near bushland, fire is a real risk to you. **Pack an emergency kit including important items such as woollen blankets, drinking water and protective clothing.**

IF THERE IS A LOT OF SMOKE

- ◯ Slow down as there could be people, vehicles and livestock on the road.
- ◯ Turn your car headlights and hazard lights on.
- ◯ Close the windows and outside vents.
- ◯ If you can't see clearly, pull over and wait until the smoke clears.

For more information visit
dfes.wa.gov.au/bushfire
or contact DFES Community Preparedness:
Community.Preparedness@dfes.wa.gov.au
or **9395 9816**

IF YOU BECOME TRAPPED BY A FIRE

Sheltering inside a vehicle is a very high risk strategy. It is unlikely that a person will survive in all but the mildest circumstances.

- ◯ Park the vehicle off the roadway where there is little vegetation, with the vehicle facing towards the oncoming fire front.
- ◯ Turn the engine off.
- ◯ Close the car doors, windows and outside vents, and call 000.
- ◯ Stay in the car until the fire front has passed. Stay as close to the floor as possible and cover your mouth with a damp cloth to avoid inhalation of smoke.
- ◯ Stay covered in woollen blankets, continue to drink water and wait for assistance.
- ◯ Once the front has passed and the temperature has dropped, cautiously exit the vehicle.

IMPORTANT INFORMATION

- ◯ Find the local ABC radio frequency in the area. Stay up to date in a major emergency, when lives and property are at risk, ABC radio will issue broadcast warnings at a quarter to and a quarter past the hour.
- ◯ Main Roads provides updated information on road closures throughout WA. Call 138 138 or www.mainroads.wa.gov.au
- ◯ Check the weather forecast and current fire restrictions. Be aware of the Fire Danger Rating for the area you are travelling to and be prepared to reassess your plans.
- ◯ Download the Bushfire Traveller's Checklist at www.dfes.wa.gov.au

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November/2021/V1.0

GOVERNMENT OF WESTERN AUSTRALIA
DFES Department of Fire & Emergency Services

HOW FIREPROOF IS YOUR PLAN?

APPENDIX 6: INDICATIVE BUSHFIRE BEHAVIOUR TO IMPACT THE FACILITY/PREMISES

Information Relevance: This information is included in the Bushfire Emergency Plan to inform and assist the decision making of those persons onsite who have the responsibility to manage a bushfire emergency for the subject facility/premises.

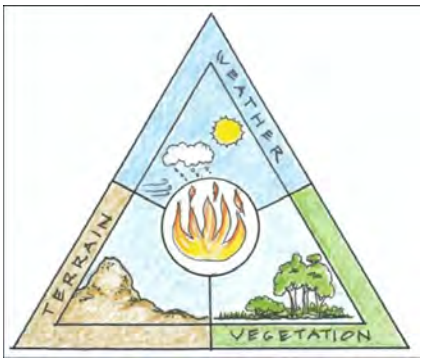
The information establishes the key factors to be considered in understanding the types and scale of key bushfire behaviours that can be expected to impact the facility/premises on a given day. These factors are the type of vegetation that exists on the land surrounding the subject premises/facility, the relevant surrounding terrain, and the forecast Fire Danger Rating (FDR) that applies to the locality.

Information Source: The information is taken from the bushfire behaviour modelling applied within the Australian Fire Danger Rating System (AFDRS). Within this system, eight accepted bushfire behaviour models, describing mathematically the way fire moves and spreads through different vegetation types, are currently available and are applied to twenty two different vegetation types across Australia.

The modelling is used to derive the Fire Behaviour Index (FBI) that assists firefighting operational decision making. From the FBI, Fire Danger Ratings (FDR) are derived which provide the broad categories needed to communicate fire danger to the community. The determination of the daily FDR considers the vegetation types present and the forecast fire weather conditions. The higher the rating, the more dangerous the conditions and the greater the consequences if a fire starts. (Source: AFDRS project led by NSW RFS, Australian Bureau of Meteorology and AFAC).

The Fire Behaviour Triangle

The behaviour of a bushfire, including the types of threats, intensity and how quickly it moves, depends on the three factors of vegetation, weather and terrain.



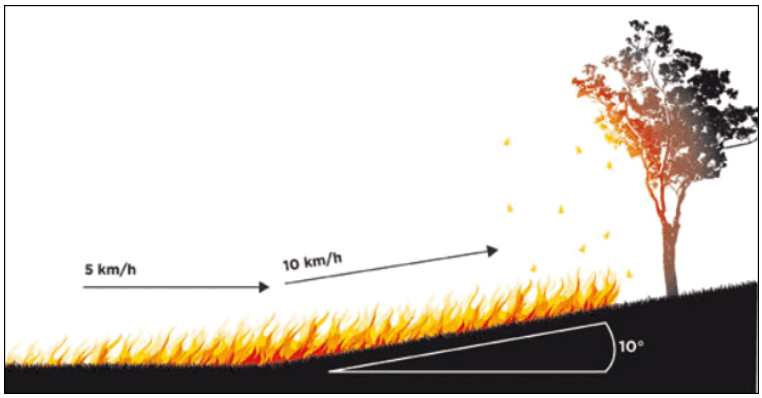
This is known as the fire behaviour triangle – because all three factors combine to shape the characteristics of the bushfire (source: CSIRO 'Bushfire best practice guide' at ... research.csiro.au/bushfire/).

The influence of fire weather (FDR) and vegetation types (as per AFDRS) on the potential bushfire impact to the subject facility/premises, can be derived from the tables presented on the following page(s). Greater fuel loads will result in behaviours at the higher end of stated values.

The influence of terrain can be derived by considering the existence and degree of sloping ground and changes in changes in relief (e.g., flat, undulating or rugged land), surrounding the subject facility/premises and particularly under the vegetation.

The Influence of Terrain (topography)

A fire will burn faster uphill. This is because the flames can easily reach more unburnt fuel in front of the fire. Radiant heat pre-heats the fuel in front of the fire, making the fuel even more flammable.



For every 10˚ slope, the fire will double its speed. For example, if a fire is travelling at 5 km per hour along flat ground and it hits a 10˚ slope it will double in speed to 10 km per hour up the hill. By increasing in speed the fire also increases in intensity, becoming even hotter.

The opposite applies to a fire travelling downhill. The flames reach less fuel, and less radiant heat pre-heats the fuel in front of the fire. For every 10˚ of downhill slope, the fire will halve its speed. Fires tend to move more slowly as the slope decreases (source: Country Fire Authority, Victoria).

Terrain should be considered for its potential to increase adverse fire behaviour including flame heights, forward rates of spread and ember production (in relevant vegetation i.e., primarily bark fuels). Essentially, where vegetation exists on sloping land near your site, assume that the higher end of adverse fire behaviours is much more likely to apply.

APPENDIX 7: LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY

Where initial or renovation landscaping of grounds surrounding the facility/premises is being conducted, apply the directions and principles of the following measures to the greatest extent possible.

For additional guidance, refer to:

- The Guidelines for Planning in Bushfire Prone Areas within the Explanatory Notes for Element 2 of the Bushfire Protection Criteria and Schedule 1: Standards for Asset Protection Zones (WAPC 2021); and
- The DFES 'Bushfire Preparation Toolkit' publication. Website: publications.dfes.wa.gov.au/?hazard=Bushfire

☐ Use of Non-Vegetated Areas and/or Public Open Space:

Reduce the exposure of the facility/premises to the direct and indirect threats of bushfire by incorporating low threat uses of land adjoining the facility/premises and/or the bushfire hazard. These uses create robust and easier managed asset protection zones and include:

- Non-vegetated areas e.g. footpaths, paved areas, roads, driveways, parking, drainage, swimming pools;
- Formally managed areas of vegetation (public open space and other recreation areas), including irrigated areas; and
- Services installed in a common section of non-vegetated land.

☐ Landscaping – Non-Combustible Construction: Ensure non-combustible materials are used for fencing and any other landscaping construction, including retaining walls.

☐ Landscaping – Tree and Plant Species Selection

Utilise trees and plants with characteristics that are more resistant to burning. Refer to *Guidelines for Planning in Bushfire Prone Areas, Appendix 4 'Explanatory Notes E2: Plant Flammability' (WAPC 2021) for initial guidance*.

Avoid planting trees with ribbon or stringy barks (ember/firebrand production). Preference for smooth bark.

☐ Landscaping – Tree and Plant Separation from the Facility/Premises (Location):

Trees (greater than 6 metres in height: Minimise the potential for tree strike damage (falling or blown) to the facility/premises (allowing flame, radiant heat and ember entry to internal spaces), and debris accumulation on, in and around the facility/premise. Principles to apply are:

- Ideally trees will be separated from buildings/structures by a distance of at least 1.5 times the height of the tallest tree;
- As a minimum, trunks at maturity should be at least 6 metres from all elevations of the building, branches at maturity should not touch or overhang a building or powerlines. Mature tree canopies should be separated at least 5m with total canopy cover not exceeding 15% and not connected to tree canopy outside the APZ;
- Species of trees that produce significant quantities of debris (fine fuels) during the bushfire season should be located a sufficient distance away from vulnerable exposed elements to ensure debris cannot drop and accumulate within at least 4m of buildings/structures or be likely to be relocated by wind to closer than 4m to buildings / structures.

Shrubs and scrub (0.5 metres to 6 metres in height):

- Should not be located under trees or within 3 metres of buildings;
- Should not be planted in clumps greater than 5m^2 in area;
- Clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres (unless they can be classified as low flammability plants); and
- Shrubs greater than 6 metres in height are to be treated as trees.

Ground covers (less than 0.5 metres in height):

- Can be planted under trees but and no closer than two metres from a structure but 3 metres from doors or windows if greater than 100 mm in height; and
- Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: Where possible utilise irrigated perennial species.

Mulches should be non-combustible e.g., stone, gravel and crushed rock. Where wood mulch is used it should be greater than 6mm in thickness.

☐ Separation Between the Facility/Premises and the Consequential Fire Fuels of Stored Flammable Products (Fuels / Other Hazardous Materials):

If applicable. establish sufficient separation distance between the consequential fire fuels and the facility/premises. The required separation distance will be dependent on the fuel and storage type and will need to be determined.

☐ Separation Between the Facility/Premises and the Consequential Fire Fuels of Stored and Constructed Combustible Items:

These consequential fire fuels include:

- Stored Combustible Items - Heavy Fuels (greater than 6mm diameter) e.g. building materials, packaging materials, firewood, branches, sporting/playground equipment, outdoor furniture, garbage bins etc:
- Stored Combustible Items – Large Heavy Fuels e.g. vehicles, caravans, boats, trailers and large quantities of dead vegetation materials stored as part of site use.
- Constructed Combustible Items – Heavy Fuels e.g. landscaping structures including fences, screens, walls, plastic water tanks.
- Constructed Combustible Items – Large Heavy Fuels e.g. adjacent buildings/structures including houses, sheds, garages, carports. (Note: If the adjacent structure is constructed to BAL-29 requirements or greater and can implement a significant number of additional bushfire protection measures associated with reducing exposure and vulnerability, these minimum separation distances could be reduced by 30%).

Apply the rule of thumb "assume flames produced from a consequential fire source will be twice as high as the object itself … where the consequential fire source is a structure, then the maximum eave height is a reasonable measure of maximum height".

Apply the following separation distances from the subject building/structure as a multiple of the height of the consequential fire source and dependent on the bushfire construction standard applied to the building/structure:

- At least six times the height when the facility/premises construction incorporates design and materials that is only intended to resist low levels of radiant heat up to 12.5 kW/m^2 and no flame contact (BAL-12.5);
- Between 4 and 6 six times the height when the facility/premises construction incorporates design and materials intended to resist radiant heat up to 29 kW/m^2 and no flame contact (BAL-29).
- Between 2 and 4 times the height when the facility/premises construction incorporates design and materials intended to resist up to 40kW/m^2 and potential flame contact (BAL-40).
- Less than 2 times the height when the facility/premises construction incorporates design and materials intended to resist extreme levels of radiant heat and flame contact (BAL-FZ).
- Zero separation distance is required if the facility/premises is separated by a non-combustible FRL 60/60/60 rated wall, or the potential consequential fire source is fully enclosed by the facility/premises.

☐ Constructed Barriers to Shield Facility/Premises from Bushfire: Where applicable, install walls, fences and/or landforms to shield the facility/premises (or any identified consequential fire fuels – refer to previous item) from direct and indirect bushfire attack mechanisms and reduce the potential impact of these threats.

These barriers should be constructed using appropriate fire resistant / non-combustible construction materials (e.g. masonry, steel, earthworks). These are to withstand the impact of direct bushfire attack mechanisms for the required period.

☐ Constructed Barriers to Shield Facility/Premises from Consequential Fire: Applicable to all identified consequential fire fuel sources. Install a non-combustible barrier (including complete enclosure when

appropriate), of required robustness, that will reduce the exposure of the facility/premises to the threats of consequential fire.

☐ Planted Vegetation Barrier to Shield Facility/Premises: Use appropriate species (lower flammability) of hedges and trees strategically to reduce the facility/premises exposure to radiant heat, to filter/trap embers and firebrands, and to lower wind speeds (prevailing synoptic and/or fire driven).

☐ Shield Non-Structural Essential Elements: These are vulnerable elements essential to the continued operation of the facility/premises which are potentially exposed to the fire attack mechanisms of both bushfire and consequential fire. They include electricity cabling and water plumbing and also applies to any installed firefighting equipment / water storage.

When the use of fire rated materials to the degree necessary is not possible or practical, the application of non-combustible shielding can be applied to reduce exposure to the bushfire threats. Shielding includes underground installation.

☐ Constructed Barrier to Shield Persons on Pathways to Safer Onsite Area/Building: Where possible, alongside the relevant pathways, utilise walls / fences / landforms as shielding structures constructed using fire resistant / non-combustible construction materials (e.g. masonry, steel, earthworks).

These are to withstand the impact of direct bushfire attack mechanisms for the required period and provide the required reduction in threat levels to persons (including firefighters) traversing the pathway.

FOREST

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)



Source: AFDRS v 2022_6

FDR	INDICATIVE BUSHFIRE BEHAVIOUR			
NO RATING	MAX FLAME HEIGHT <1 m	0-5	RATE OF SPREAD 0-40 m/hr	Fire difficult to ignite and sustain. Fires generally unlikely to spread and likely to self-extinguish.	**SPOTTING POTENTIAL** Potential for any spotting is very limited and likely **<150 m**
	<4 m	6-11	20-110 m/hr	Slow spreading fires, typically involving surface and near-surface fuels and sometimes bark and elevated fuels. Spotting is sporadic and limited to short-distances.	Potential for spotting is limited with short distance spotting possible up to **400 m**
MODERATE	2-8 m	12-23	60-600 m/hr	Actively spreading fires typically involving surface, near-surface, elevated and bark fuel layers and occasionally canopy fuels. Low-moderate spotting frequency; isolated medium range spotting can occur.	Short distance spotting occurring with increasing frequency with possible medium distance spotting up to **2 km**
HIGH	7-14 m	24-49	0.3-1 km/hr	Rapidly spreading fires with potential for development into large burn areas within burning period. Fires typically involving most fuel layers. Short-range spotting is prevalent, with possibility of medium range and occasional long-range distance spotting.	Short and medium distance spotting occurring with increasing frequency with possible long distance spotting up to **4 km**
EXTREME	11 m – approx. double forest	50-99	0.7-3 km/hr	Fires likely to quickly transition to crowning. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	High ember density in short and medium range with possible long distance spotting up to **12 km**
CATASTROPHIC	>30 m (approx. double forest height)	100+	>2 km/hr can be expected, possibly >3 km/hr	Fires likely to quickly transition to crowning. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	High ember density in short and medium range with possible long distance spotting occurring **20-30 km** ahead of the main fire front

Ravenswood Childcare Centre Proposal

Lot 977 Nancarrow Way, Ravenswood



P: (08) 9399 6715

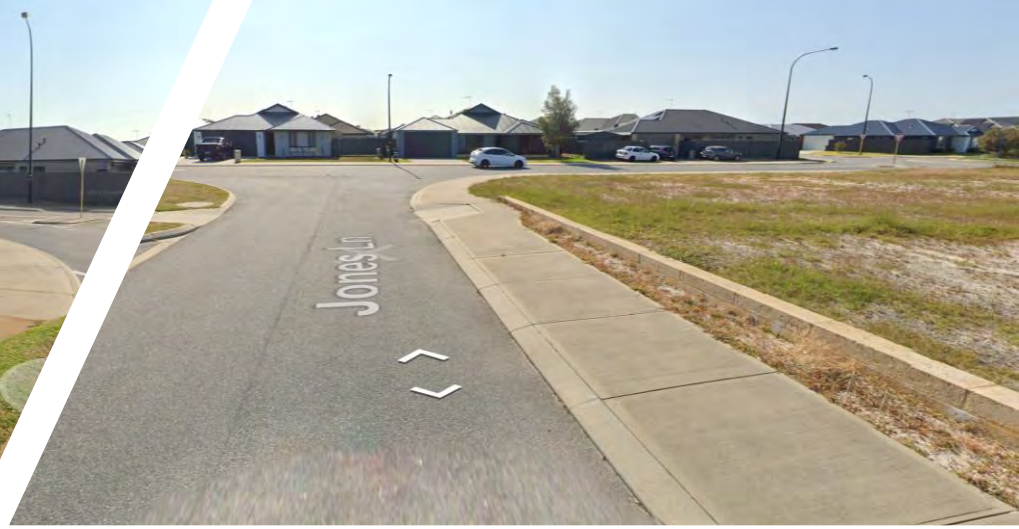
A: 4 Browning Road, Armadale WA 6112

W: www.iqconstruction.com.au









Context and character

- Vacant corner allotment at the intersection of Jolly Rambler Boulevard, Nancarrow Way and Jones Lane within an established residential area of the Shire of Murray.
- Prominent location adjacent to a local roundabout, with multiple street frontages providing high visibility and accessibility.
- Surrounding development consists of low-density residential dwellings, predominantly single storey, with pitched roofs, consistent setbacks and landscaped verges.
- Streetscape exhibits a cohesive suburban character, supported by footpaths, street trees and residential-scale built form.
- Site adjoins public open space and retained vegetation to the north and west, providing a landscaped buffer and transition to the natural environment.
- Corner location and limited sensitive residential interfaces reduce potential amenity impacts.
- Proximity to the local road network supports suitability for a community-based use, such as a childcare centre.
- A low-scale childcare centre can be appropriately integrated through building scale, setbacks, articulation, acoustic treatment and landscaping.
- The site context supports development that is compatible with the residential character and aligned with the Shire of Murray Local Planning Scheme

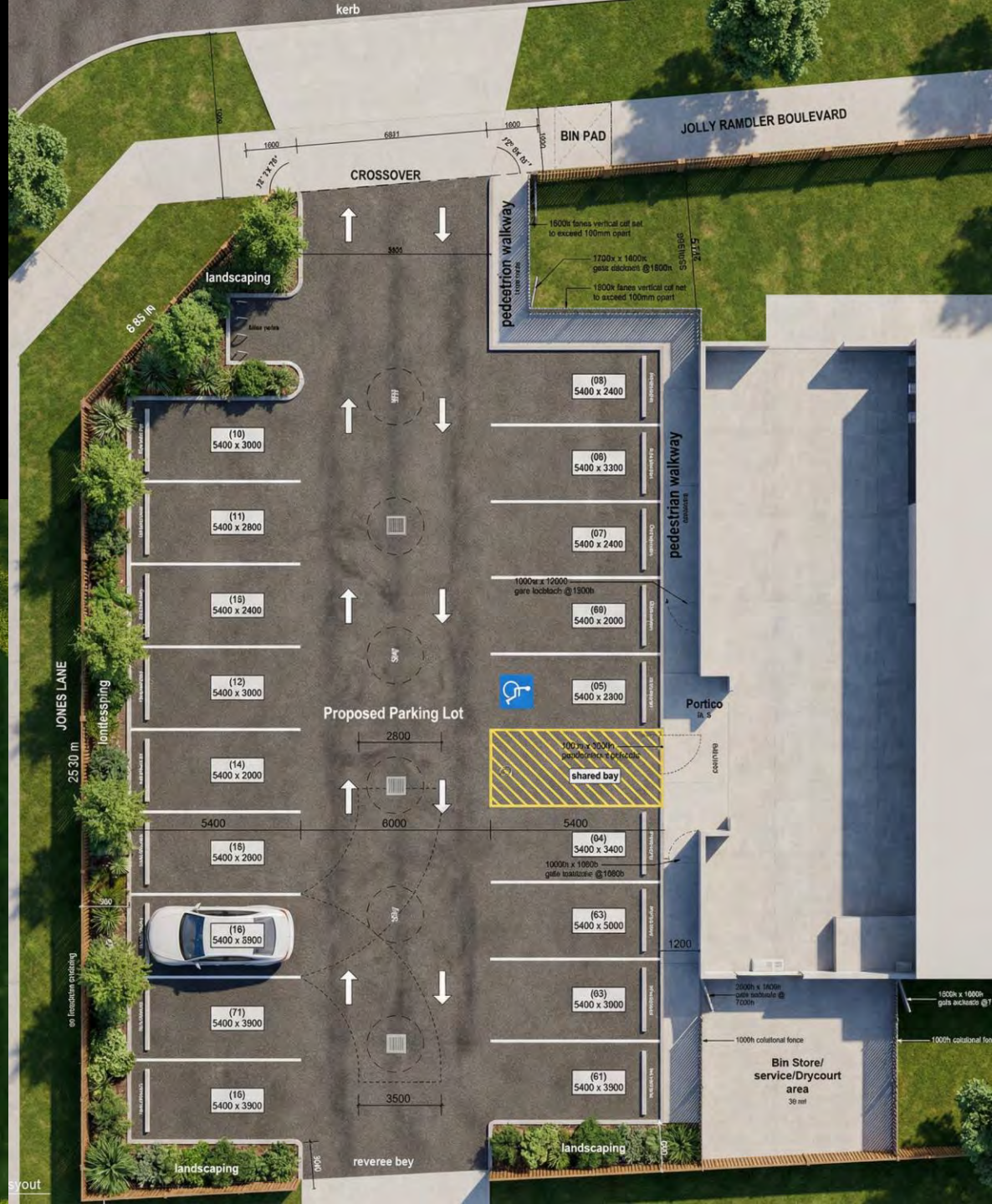




Landscape quality

- Landscaping is designed to enhance the existing streetscape character and reinforce the green, residential setting.
- Perimeter planting and trees are provided to soften built form and screen the development from adjoining properties.
- Landscaped buffers are incorporated along street frontages and sensitive interfaces to maintain visual amenity.
- Outdoor play areas are integrated with soft landscaping to provide shade and a high-quality environment for children.
- The proposed landscape treatment contributes positively to neighborhood character and public realm quality.





Built form and scale

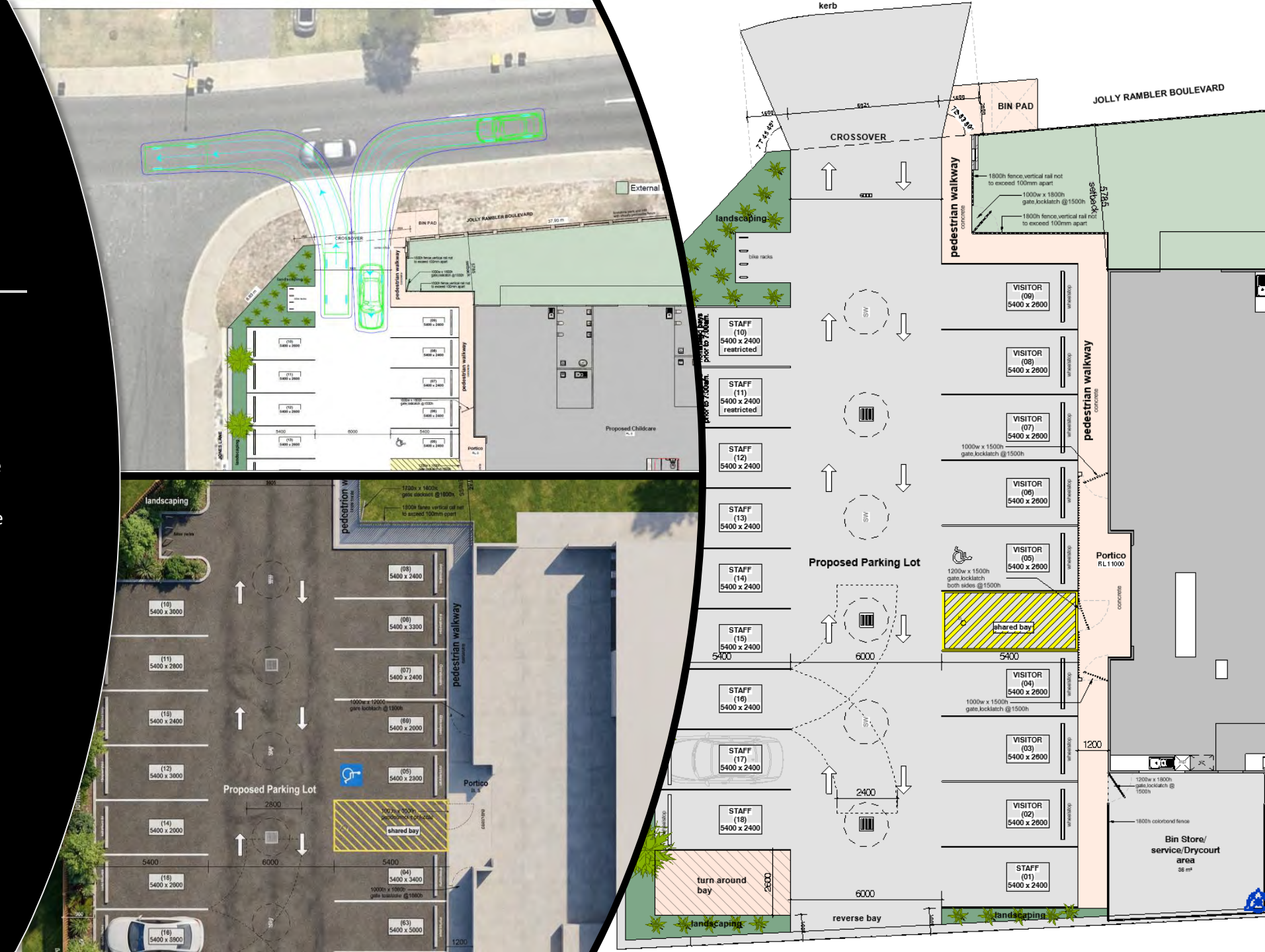
- The development is designed as a single-story childcare facility, maintaining a low-scale built form consistent with the surrounding residential context.
- Building height, bulk and massing are moderated through pitched roof forms and articulated façades, reducing visual impact when viewed from the street and adjoining properties.
- Variations in rooflines and wall planes break down the overall building mass and reinforce a residential-scale appearance.
- The building is sited to respect established street setbacks and to provide appropriate separation from neighboring residential lots.
- The built form responds to the site's corner location and open space interface, presenting well-articulated elevations to all public frontages.
- The proposed built form has been designed to reflect a residential character, ensuring the development integrates respectfully with the surrounding local context. The architectural expression is intentionally simple and understated, allowing the playscape and landscaping elements to become the primary visual focus of the site. This approach supports a softer streetscape presence while enhancing the quality and functionality of the outdoor environments.





Functionality and build quality

- The development provides a functional and efficient layout that supports the operational needs of a childcare centre.
- Building design promotes safe movement for children, staff and visitors, with clear separation between play areas, pedestrian paths and vehicle circulation.
- Durable, low-maintenance materials are proposed to ensure long-term performance and build quality.
- The design incorporates appropriate acoustic, safety and environmental measures to protect user comfort and residential amenity.
- The proposal demonstrates a high standard of design and construction consistent with the objectives of the Local Planning Scheme.



Sustainability



Water Efficiency

All water fixtures are to be WELS rated as per below table.

FIXTURE	WELS RATING
Tapware	5 Stars
Water Closets	4 Stars
Shower heads	3 Stars

Waterwise irrigation will be installed as part of a water saving initiative.

- The building is oriented to maximize natural light and ventilation, reducing reliance on artificial lighting and mechanical cooling.
- Shading elements and roof design are incorporated to improve thermal performance.
- Water-efficient fixtures and drought-tolerant landscaping are proposed to minimize water consumption.
- Durable materials are selected to support long-term environmental performance and reduced maintenance.
- The development supports sustainable outcomes consistent with the objectives of the Local Planning Scheme.

Amenity

- The design protects the amenity of adjoining residential properties through appropriate setbacks, building orientation and articulation.
- Acoustic measures are incorporated to manage noise associated with childcare activities.
- Outdoor play areas are located and designed to minimize noise and visual impacts on nearby dwellings.
- Landscaping and screening are provided to enhance privacy and soften visual impacts.
- The development maintains a high level of amenity for both users of the facility and the surrounding neighborhood.

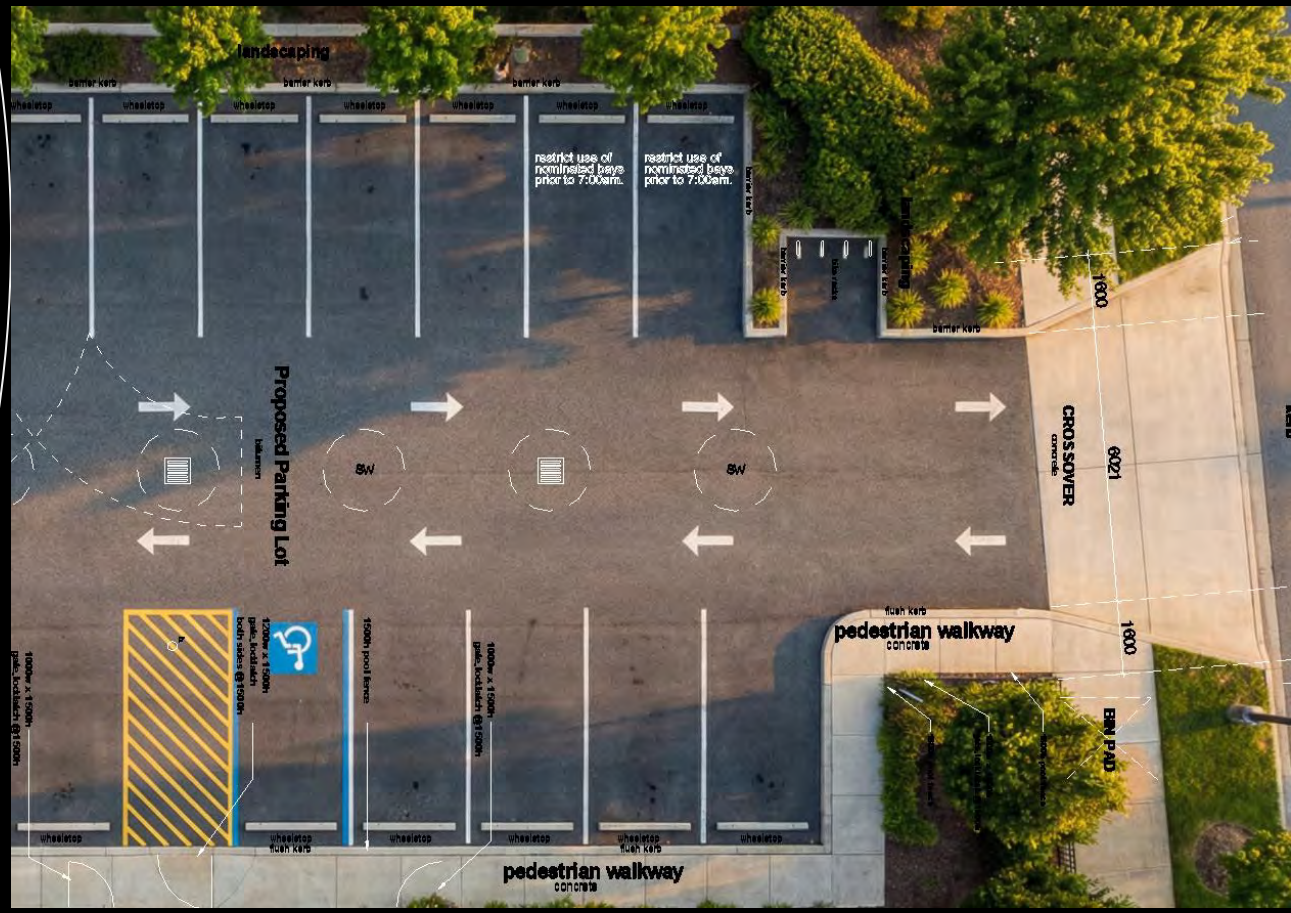




Legibility

- The development provides a clear and identifiable main entry that is easily visible from the street.
- Pedestrian access paths are direct, safe and intuitive, linking car parking areas to the building entrance.
- Building form and signage support easy wayfinding for visitors and first-time users.
- The site layout clearly distinguishes between pedestrian, vehicle and service areas.
- The overall design promotes a logical and user-friendly arrangement appropriate for a childcare facility.





Community

- The childcare centre provides a valuable local community facility that supports families within the surrounding residential area.
- The development contributes to social infrastructure and improves access to early learning services.
- The design presents an active and welcoming interface to the street, reinforcing community presence.
- The use is compatible with the residential context and enhances neighborhood functionality.
- The proposal aligns with the objectives of the Local Planning Scheme by supporting community wellbeing.





Aesthetics

- Single-storey, low-scale built form
- Pitched roof forms and articulated massing
- Clear distinction between building elements
- Neutral, natural material palette
- Perimeter fencing and screening integrated
- Windows and openings for surveillance
- Clean line design focus





Safety

- Kerb and verge separating the motor gate and pedestrian path from the entrance for cars
- Public Safety: Design elements minimize risks to the public, including adequate lighting, clear signage, and separation of pedestrian and vehicular traffic where applicable.
- Building Safety: All structures comply with the Building Code of Australia (BCA) requirements for fire safety, structural integrity, and accessibility.
- Landscaping and Open Space: Play areas, pathways, and communal spaces are designed to reduce hazards, with appropriate surfacing, fencing, and sightlines to ensure safe use.
- 1,5m pool fence are provided at the entrance for extra safety.



Proposed Child Care Centre

Lot 977 Nancarrow Way, Ravenswood

Transport Impact Statement

PREPARED FOR:
IQ Construction

February 2026

Document history and status

Author	Revision	Approved by	Date approved	Revision type
Saeed Disfani	r01	Behnam Bordbar	10/02/2026	Final

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Project: Lot 977 Nancarrow Way, Ravenswood

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Project number: t26.014

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1 Introduction

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of IQ Construction with regard to a proposed child care centre to be located at Lot 977, Nancarrow Way, Ravenswood in the Shire of Murray.

The subject site is located within the north-west corner of the single circulating roundabout intersection of Nancarrow Way and Jolly Rambler Boulevard. Refer **Figure 1** shows the aerial context of the location of the site.

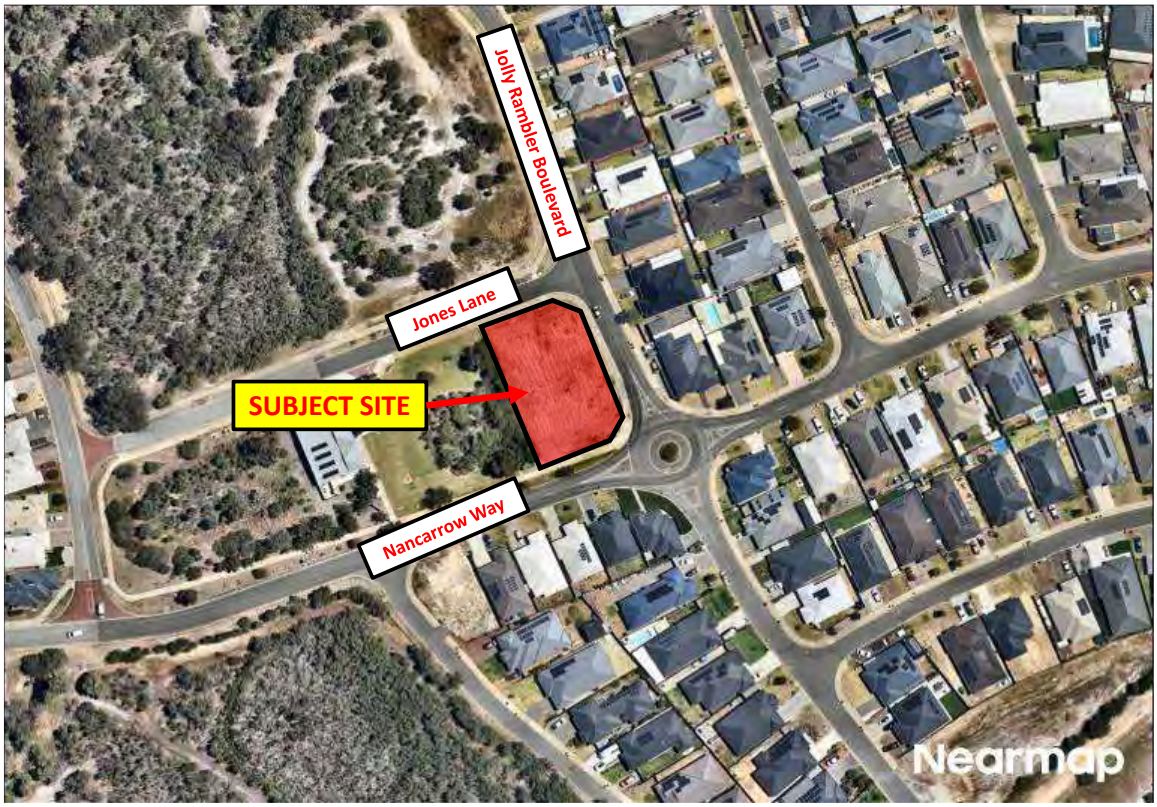


Figure 1: Location of the subject site

The Transport Impact Assessment Guidelines (WAPC, Vol 4 – Individual Developments, August 2016) states: *"A Transport Impact Statement is required for those developments that would be likely to generate moderate volumes of traffic[1] and therefore would have a moderate overall impact on the surrounding land uses and transport networks"*.

Section 6 of Transcore's report provides details of the estimated trip generation for the proposed development. Accordingly, as the total peak hour vehicular trips are estimated

[1] *Between 10 and 100 vehicular trips per hour*

to be less than 100 trips, a Transport Impact Statement is deemed appropriate for this development.

Key issues that will be addressed in this report include the traffic generation and distribution associated with the proposed development, circulation and access/egress movement patterns.

2 Proposed Development Site Plan

The Development Application (DA) for the subject site proposes the development of a child care centre with an associated on-site car park. This child care centre is proposed to accommodate up to 72 children and 11 staff members.

According to the development plan provided in Appendix A, a total of 17 on-site parking bays(inclusive of one ACROD bay) and a turnaround bay, are proposed to address the parking demand of the proposed child care centre. Additional on-street public parking is in place along the northern boundary of the site on Jones Lane, inclusive of an on-street ACROD bay located to the north-west of the site.

A bin storage area is located on-site at the south-western corner of the car park with a proposed bin pad to be situated on Jolly Rambler Boulevard, adjacent to the crossover along the eastern boundary of the site.
Proposed vehicular access to the proposed development consists of a full-movement crossover to the east of the site on the west side of Jolly Rambler Boulevard. Pedestrian access is proposed via the existing shared path network adjacent to the southern, eastern and northern boundaries of the site on Nancarrow Way, Jolly Rambler Boulevard and Jones Lane, respectively.

The proposed development plan for the child care centre is provided in **Appendix A**.

3 Vehicle Access and Parking

3.1 Access

Vehicular access to the child care centre will be accommodated via a full-movement crossover to the west side of Jolly Rambler Boulevard, north of Nancarrow Way. Vehicles would enter the site via this proposed crossover and would exit via the same crossover in forward gear. Location of proposed crossover is illustrated in **Figure 2.**



Figure 2: Location of Proposed Development Crossover

3.2 Parking

As outlined in the Shire of Murray's *Local Planning Policy: Child Care Services,* child care centres are required to provide one parking bay for each staff member and a minimum of 9 bays plus 1 bay per 8 children in excess of 54 children to be accommodated on the site.

The proposed development will cater to 72 children and 11 staff with 17 bays, inclusive of one (1) ACROD bay proposed on site. Additional on-street public parallel indented parking is in place on Jones Lane along the northern boundary of the site.
In accordance with the Shire's LPP, the proposed development requires **23** parking bays.

The parking supply and demand is further discussed in the following section of the report to address the actual parking demand associated with the proposed development.

3.3 Estimated Actual Parking Demand

Transcore has undertaken a parking analysis based on the anticipated peak hour traffic generation of the proposed child care centre (CCC), to estimate the actual peak parking demand of the centre. This methodology has been successfully applied by Transcore to many child care centre projects.

Section 6 of this report details the anticipated peak hour traffic generation of the proposed CCC. It was established that the calculated morning peak hour trip generation of the proposed CCC is **36** vehicles in and **27** vehicles out of the car park during this critical AM peak hour. The morning peak hour is estimated to generate more traffic than the afternoon peak hour. This represents a potential **36** vehicles using the child care centre car park during the critical morning peak hour.

The NSW *"Guide to Traffic Generating Developments"* section on child care centres provides commentary on child care centre mode share, parking utilisation and parking length of stay. It should be noted that the commentary provided in the NSW guide is based on surveys of actual parking activity undertaken in New South Wales. The NSW guide indicates highest parking demand of 0.23 cars per child (which represents a parking requirement of 17 bays for the proposed child care) and the average recorded length of stay for all surveyed child care centres of 6.9 minutes.

Conservatively assuming that the average length of stay for pick-up/drop-off parking for the proposed child care centre is 10 minutes, it is calculated that each parking bay can accommodate a turnover of up to 6 vehicles per hour.

It is therefore established that minimum of 6 bays (36/6 = 6) should be reserved for pick-up and drop-off activities during peak hour periods which results in actual parking demand of 17 bays (11 bays for staff + 6 pickup/drop off bays) for the proposed centre. Therefore, the parking provision of 17 bays on site is anticipated to cater for the actual parking demand of the development. For a robust parking management, it is recommended that eight bays should be marked for use of visitors (drop off/pick up) and nine bays should be allocated to staff. It should also be noted that:

- Many patrons of the child care centre are anticipated to come from the local residential catchment and may walk their children to and from the CCC; and
- The operator of the child care centre will encourage local employment and staff car-pooling and use of other means of transport which will reduce the parking demand at the site.

For the reasons outlined above, it is considered that sufficient parking has been provided to meet the anticipated parking demand of the proposed child care centre.

4 Provision for Service Vehicles

A bin storage area is proposed at the south-western corner of the on-site car park with the bin pad for collection purposes situated adjacent to south side of the crossover on Jolly Rambler Boulevard verge as shown in the proposed development plan in **Appendix A**.

A waste collection truck will collect waste bins along the verge of Jolly Rambler Boulevard from the bin pad area on designated collection days.

Other service and delivery activities are proposed via small trucks or vans using the centre car park outside the drop off and pick up periods.

5 Hours of Operation

The proposed child care centre would typically operate from 6:30 AM to 6:30 PM, Monday to Friday.

6 Daily Traffic Volumes and Vehicle Types

In order to establish an accurate traffic generation rate for the proposed child care centre, traffic count surveys undertaken by Transcore at similar centres in the Perth metropolitan area were sourced.

Discussions with the respective centre managers revealed that the peak drop-offs and pick-ups for these centres occur between the hours of 7:30 AM – 9:30 AM and 3:00 PM – 5:00 PM.

From the total number of children at each of the centres on the surveyed days, the following average generation rates were established for the morning and afternoon surveyed periods:

- 7:30AM–9:30AM: 1.25 trips per child (57% in / 43% out); and,
- 3:00PM–5:00PM: 1.10 trips per child (49% in / 51% out).

From this information, the traffic generation rate for the combined period of 07:30AM–09:30AM and 3:00PM–05:00PM was calculated as 2.36 trips per child. To convert this figure to a daily generation rate, this figure was increased to 3.5 trips per child to account for any trips outside of the surveyed times. It was assumed that the daily in and out split for vehicle trips was 50/50.

Furthermore, the following peak hour generation rates were established from the surveys for the child care centres:

- AM peak hour: 8:00AM – 9:00AM: 0.87 trips per child (57% in / 43% out); and,
- PM peak hour: 04:00PM – 05:00PM: 0.71 trips per child (47% in/ 53% out).

A comparison of the four-hour generation rates and the peak-hour generation rates confirms that the distribution of traffic from these centres is spread over the peak periods, and that the full concentration of traffic does not occur in one peak hour.

Accordingly, the following number of trips was estimated for the proposed centre assuming a maximum scenario with 72 children at the centre (i.e., the centre operating at full capacity):

- AM peak hour: 63 trips generated (36 in / 27 out);
- PM peak hour: 51 trips generated (24 in / 27 out); and,
- Daily traffic generation: 252 trips generated (126 in / 126 out).

Table 1 summarises the trip generation of the proposed CCC.

Table 1: Site-Generated Trip Generation

Capacity	Daily (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
	In	Out	In	Out	In	Out
72 children	126	126	36	27	27	24

6.1 Traffic Flow



Figure 3 illustrates the anticipated total peak hour and daily trip generation and traffic distribution associated with the proposed child care centre.



Figure 3: Estimated Traffic Distribution for Child Care Centre

6.2 Impact on Surrounding Roads

The WAPC Transport Impact Assessment Guidelines (2016) provides guidance on the assessment of traffic impacts:

"As a general guide, an increase in traffic of less than 10 per cent of capacity would not normally be likely to have a material impact on any particular section of road but increases over 10 per cent may. All sections of road with an increase greater than 10 per cent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 per cent of capacity. Therefore, any section of road where development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis."

It is clear that the traffic increase from the proposed child care centre would be significantly less than the critical threshold (100vph per lane). As detailed in **Section 6.1**, the proposed development will not increase traffic on any lanes on the surrounding road network by more than 100vph, therefore the impact of the development traffic on the surrounding road network will not be significant and does not require further assessment.

7 Traffic Management on the Frontage Streets

Nancarrow Way is the primary entry road into the Ravenswood neighbourhood area from Pinjarra Road to the west. It has been constructed as a single undivided carriageway in the vicinity of the site.

Nancarrow Way has been designated as an *Access Road* under the Main Roads WA *Functional Road Hierarchy*; however, it is likely to be redesignated, as per the Ravenswood Outline Development Plan (2013), to a *Local Distributor* or *Neighbourhood Connector B* road as it currently carries in the order of 3,000 to 4,000 vpd. It also provides the only connection to the higher order road network for the central and southern parts of the Ravenswood urban cell. It operates under a posted speed limit of 50kph along the southern frontage of the site and is owned, operated and maintained by the Shire of Murray.

Figure 4 shows the view eastbound on Nancarrow Way along the southern boundary of the site.



Figure 4: View Eastbound along Nancarrow Way Along Southern Frontage of Site

Jolly Rambler Boulevard is a local road providing direct access to the site and to residential cells to the east and north-east of the site. As part of the buildout of Ravenswood Outline Development Plan, the road will be extended to the north-west to connect with the established Jolly Rambler Boulevard alignment which currently connects with Pinjarra Road. It carries in the order of less than 1,000 vpd under existing conditions

This road has been constructed as a single undivided carriageway in the vicinity of the site. It has been designed as an *Access Road* under the Main Roads WA *Functional Road Hierarchy*.

Figure 5 shows the view southbound on Jolly Rambler Boulevard along the eastern boundary of the site.



Figure 5: View Southbound along Jolly Rambler Boulevard Way Along Eastern Frontage of Site

Jones Lane is a local road providing direct access to the northern side of the Ravenswood Community Centre located to the west of the site. It has been constructed as a single undivided carriageway with indented on-street public parallel parking on the north side and an indented ACROD bay on the south side.

It is estimated that Jone Lane carries in the order of 200 vpd under existing conditions. It has been designed as an *Access Road* under the Main Roads WA *Functional Road Hierarchy*.

Figure 6 shows the view eastbound along Jones Lane towards Jolly Rambler Boulevard.



Figure 6: View Eastbound along Jones Lane towards Jolly Rambler Boulevard

8 Public Transport Access

Route 600 (Mandurah Station to Pinjarra via Pinjarra Road and Ravenswood) provides weekday 20-minute peak services, midday hourly services and hourly early evening services in the vicinity of the site. The closest bus stops are situated on Carter Street to the south-west of the site.

9 Pedestrian and Cycle Access

A 2m shared path is in place on both sides of Jolly Rambler Boulevard along the eastern boundary of the site and on both sides of Jones Lane to the north. A shared path is in place only on the north side of Nancarrow Way adjacent to the southern boundary of the site with no pedestrian or cycling infrastructure in place on the south side of Nancarrow Way.

10 Site Specific Issues

Other than theoretical parking shortfall, no other site-specific issues were identified within the scope of this assessment.

11 Safety Issues

A review of the sightlines along Jolly Rambler Boulevard in the vicinity of the site crossover indicate that the relevant requirements for ASD, MGSD and SISD are satisfied in the context of the proposal.

The proximity of the proposed site crossover to the T-intersection of Jolly Rambler Boulevard and Jones Lane will not impact these sightlines as the traffic exiting via a right-turn movement out of Jones Lane (eastbound-southbound) is very low during peak periods.

A review of the crash history for the 5-year reporting period 2020-2024 indicates no documented crashes in the vicinity of the site, including along Jolly Rambler Boulevard in the vicinity of the site crossover, along Jones Lane along the northern boundary of the site or at the Nancarrow Way/Jolly Rambler Boulevard roundabout intersection.

As a result, no safety issues on the adjacent boundary road network have been identified which would impact the proposal.

12 Conclusions

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of IQ Construction with regard to a proposed child care centre to be located at Lot 977, Nancarrow Way, Ravenswood in the Shire of Murray.

The proposal entails the development of a child care centre catering to 72 children and 11 staff with 17 car parking bays to be situated on site. Proposed access to the site consists of a full movement crossover to the west side of Jolly Rambler Bouelvard, north of Nancarrow Way along the eastern boundary of the site.

The traffic analysis undertaken in this report shows that the traffic generation associated with the proposal is relatively low and would not have any significant impact on the surrounding road network.

Waste collection will be accommodated on street from a dedicated bin pad on the western verge of Jolly Rambler Boulevard along the eastern boundary of the site. Other service and delivery activities will be accommodated within the on-site car park outside peak demand periods.

The proposed car parking supply for the site in the form of 17 bays is anticipated to cater to the anticipated demand of the proposal. This car parking supply is further supplemented by existing established on-street intended public parking on Jones Lane to the north of the site, if required.

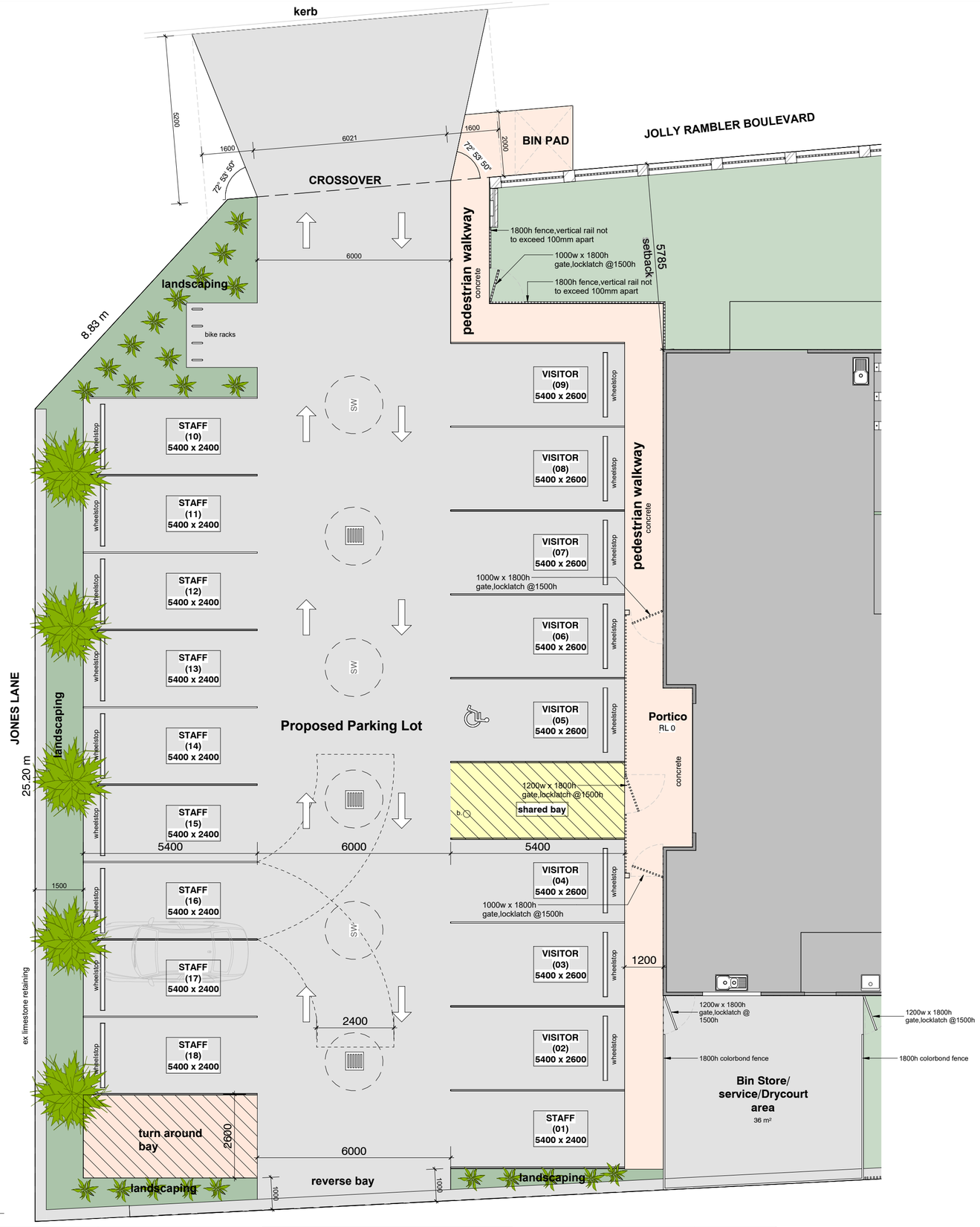
It is concluded that the findings of this Transport Impact Statement are supportive of the proposed child care centre.

Appendix A

PROPOSED DEVELOPMENT PLANS

Parking Schedule

Type	Qty.	Description
5400 x 2400 (WheelStop) Staff Bay	9	Standard Carpark Bay
5400 x 2400 (Without Wheelstop) Staff Bay	1	Standard Carpark Bay
5400 x 2600 (WheelStop) Visitor Bay	8	Standard Carpark Bay
	18	



Proposed Parking Layout

1 : 100

CONSTRUCTION
INTELLIGENT DESIGN QUALITY BUILD

4 Browning Road
Armadale WA 6112
Phone: (08) 9399 6715
Fax: (08) 9399 8564
admin@iqconstruction.com.au

BUILDER _____ DATE _____

CLIENT 1 _____ DATE _____

CLIENT 2 _____ DATE _____

REV	DATE	DESCRIPTION	BY	CHK
3	21 Jan. '26	Planning	WM	SV
2	04 Dec. '25	Concept	WM	
1	02 Dec. '25	Concept	WM	

NOTES
All areas are approximate only. Design is subject to site conditions, location of services, energy efficiency compliance and approval of relevant authorities.

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CLIENT: Ravenswood Childcare

ADDRESS: Lot 977 Nancarrow Way,Ravenswood

DRAWING: Proposed Parking Layout

PROJECT NO: 0000 | DRAWN: WM | CHECK: SV | DATE: 02 Dec. '25

PROJECT STAGE: PLANNING | SCALE: 1:100 (0m — 5m) | DRAWING NO.: P102 rev 3

PAPER SIZE: A2

Appendix B

TURN PATH ANALYSIS

transcore

25 years anniversary

External Playscape

JOLLY RAMBLER BOULEVARD

37.93 m

limestone piers and infill
with visually permeable fence

BIN PAD

1600

6021

1600

CROSSOVER

combo m'box

6000

pedestrian walkway
concrete

1800h fence,vertical rail not
to exceed 100mm apart

1000w x 1800h
gate,locklatch @1500h

1800h fence,vertical rail not
to exceed 100mm apart

5785
setback

landscaping

8.83 m

bike racks

(09)
5400 x 2400

(10)
5400 x 2600

(08)
5400 x 2400

(11)
5400 x 2600

(07)
5400 x 2400

pedestrian walkway
concrete

1000w x 1800h
gate,locklatch @1500h

(12)
5400 x 2600

(06)
5400 x 2400

5400

6000

5400

(13)
5400 x 2600

(05)
5400 x 2400

JONES LANE

landscaping

Portico
RL 0

1200w x 1800h
gate,locklatch @1500h

Proposed Childcare
RL 0

Lot 977 Nancarrow Way, Ravenswood

B99 & B85 Passenger Cars

Simultaneous Turns at the Crossover

LEGEND

Vehicle Body

Wheel Path

300mm Clearance

t26.014.sk02

04/02/2026

Scale: 1:150 @ A3

transcore

PROPOSED CHILD CARE CENTRE
LOT 997 NANCARROW WAY,
RAVENSWOOD

ENVIRONMENTAL ACOUSTIC ASSESSMENT

FEBRUARY 2026

OUR REFERENCE: 36025-2-26049

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
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DOCUMENT CONTROL PAGE

ENVIRONMENTAL ACOUSTIC ASSESSMENT

PROPOSED CHILD CARE CENTRE
LOT 997 NANCARROW WAY, RAVENSWOOD

Job No: 26049

Document Reference: 36025-2-26049

FOR

IQ CONSTRUCTION

DOCUMENT INFORMATION			
Author:	Geoff Harris	**Checked By:**	Tim Reynolds
Date of Issue:	17 February 2026		

REVISION HISTORY

Revision	Description	Date	Author	Checked
1	Original Issue	17/02/26	GH	TR
2	Updated Plans and Commentary	26/05/26	GH	TR

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Copy No.	Version No.	Destination	Hard Copy	Electronic Copy
1	1	IQ Construction Attn: Dwayne Ballast Email: dwayne@iqconstruction.com.au		✓
1	1	Plan WA Attn: Clare McLean Email: clare@planwa.au		✓

This report has been prepared in accordance with the scope of services and on the basis of information and documents provided to Herring Storer Acoustics by the client. To the extent that this report relies on data and measurements taken at or under the times and conditions specified within the report and any findings, conclusions or recommendations only apply to those circumstances and no greater reliance should be assumed. The client acknowledges and agrees that the reports or presentations are provided by Herring Storer Acoustics to assist the client to conduct its own independent assessment.

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1.	INTRODUCTION	1
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4.	PROPOSAL	4
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6.	ASSESSMENT	5
7.	CONCLUSION	7

APPENDICIES

A PLANS

1. INTRODUCTION

Herring Storer Acoustics were commissioned by IQ Construction to undertake an acoustic assessment of noise emissions associated with the proposed child care centre to be located at Lot 997 Nancarrow Way, Ravenswood.

The report considers noise received at the neighbouring premises from the proposed development for compliance with the requirements of the *Environmental Protection (Noise) Regulations 1997.* This report considers noise emissions from:

- Children playing within the outside play areas of the centre.
- Mechanical Plant

We note that from information received from DWER, the bitumised area would be considered as a road, thus noise relating to motor vehicles is exempt from the *Environmental Protection (Noise) Regulations 1997*. We note that these noise sources are rarely critical in the determination of compliance. However, as requested by council and for completeness, they have been included in the assessment, for information purposes only.

For information, a plan of the proposed development is attached in Appendix A.

2. SUMMARY

Noise received at the neighbouring residences from the outdoor play areas would comply with the requirements of the *Environmental Protections (Noise) Regulations 1997*, provided outdoor play is limited to the day period (ie after 7am).

Noise from the mechanical services has also been assessed to comply with the relevant criteria when placed in the dryer court as shown on plans. However, as the design of the mechanical services has not been undertaken at this stage of the project, it is recommended that the mechanical services design be reviewed for compliance with the Regulatory requirements.

It is noted that noise associated with cars movements and cars starting are exempt from complying with the Regulations. However, noise emissions from car doors is not strictly exempt from the Regulations. Noise received at the existing neighbouring residences from these noise sources would comply with the Regulatory requirements, at all times given the conditions listed below.

Thus, noise emissions from the proposed development, would be deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed hours of operation, with the inclusion of the following:

1 Although the proposed facility would open before 0700 (ie during the night period), the outdoor play area would not be used until after 0700.

2 Mechanical plant has been allocated to drying court. Once mechanical selection is confirmed an additional assessment may be required to ensure compliance.

3 A 1600-1800mm barrier surrounding the outdoor play area (as shown on the drawing attached in Appendix A).

4 The two northmost car bays would need to be restricted prior to 7AM.

3. CRITERIA

The allowable noise level at the surrounding locales is prescribed by the *Environmental Protection (Noise) Regulations 1997*. Regulations 7 & 8 stipulate maximum allowable external noise levels. For highly sensitive area of a noise sensitive premises this is determined by the calculation of an influencing factor, which is then added to the base levels shown below in Table 3.1. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern. For other areas within a noise sensitive premises, the assigned noise levels are fixed throughout the day, as listed in Table 3.1.

TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises: highly sensitive area	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF
Commercial Premises	All Hours	60	75	80
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.
IF is the influencing factor.

Under the Regulations, a highly sensitive area means that area (if any) of noise sensitive premises comprising –

(a) A building, or a part of a building, on the premises that is used for a noise sensitive purpose; and

(b) Any other part of the premises within 15 m of that building or that part of the building.

It is a requirement that received noise be free of annoying characteristics (tonality, modulation and impulsiveness), defined below as per Regulation 9.

"impulsiveness" means a variation in the emission of a noise where the difference between L_{Apeak} and $L_{Amax(Slow)}$ is more than 15 dB when determined for a single representative event;

"modulation" means a variation in the emission of noise that –

(a) is more than 3 dB L_{AFast} or is more than 3 dB L_{AFast} in any one-third octave band;

(b) is present for more at least 10% of the representative assessment period; and

(c) is regular, cyclic and audible;

"tonality" means the presence in the noise emission of tonal characteristics where the difference between –

(a) the A-weighted sound pressure level in any one-third octave band; and

(b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as L_{ASlow} levels.

Where the noise emission is not music, if the above characteristics exist and cannot be practicably removed, then any measured level is adjusted according to Table 3.2 below.

TABLE 3.2 - ADJUSTMENTS TO MEASURED LEVELS

Where **tonality** is present	Where **modulation** is present	Where **impulsiveness** is present
+5 dB(A)	+5 dB(A)	+10 dB(A)

Note: These adjustments are cumulative to a maximum of 15 dB.

The neighbouring locations have been identified as:

- R1 – Residential to the South of Nancarrow Way
- R2 – Residential to the East of Jolly Ramble Boulevard
- R3 – Residential to the Southeast of both Nancarrow Way and Jolly Ramble Boulevard
- R4 – Ravenswood Community Centre.

Locations have an influencing factor of +0 dB and are shown in Appendix A.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	**Time of Day**	**Assigned Level (dB)**		
		L_{A10}	**L_{A1}**	**L_{Amax}**
R1 – R4	0700 - 1900 hours Monday to Saturday (Day)	45	55	65
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40	50	65
	1900 - 2200 hours all days (Evening)	40	50	55
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35	45	55

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.

4. PROPOSAL

From information supplied, we understand that the child care centre normal hours of operations would likely between 0630 and 1800 hours, Monday to Friday (closed on public holidays). It is understood that the proposed childcare centre will cater for 72 children broken up as follows

0-2 years	12 Children
2-3 years	20 Children
3-5 years	40 Children

It is noted that the outdoor play area would not be intended to be used until after 0700.

Similarly, mechanical plant would possibly operate all hours of the day.

5. MODELLING

To assess the noise received at the neighbouring premises from the proposed development, noise modelling was undertaken using the noise modelling program SoundPlan.

Calculations were carried out using the DWER's weather conditions, which relate to worst case noise propagation, as stated in the Department of Environment Regulation *"Draft Guidance on Environmental Noise for Prescribed Premises"*. These conditions include winds blowing from sources to the receiver(s).

Calculations were based on the sound power levels used in the calculations are listed in Table 5.1, as well as plans and contours provide by the client.

TABLE 5.1 – SOUND POWER LEVELS

Item	Sound Power Level, dB(A)
Children Playing	<24 months 78 (per 10 children) Between 24 and 36 months 85 (per 10 children) >36 months 87 (per 10 children)
Car Moving in Car Park	79
Car Starting	85
Door Closing	87
Childcare Air conditioning condensing Unit (4x)	71 each

Notes:

1 Acoustic modelling of outdoor play noise was made, based on 72 children within the outdoor play area (i.e. worst case scenario).

2 The noise level for the mechanical plant has been based on the sound power levels used for previous assessment of child care centres. From other studies, we understand that the noise associated with the condensing units would be conservative.

3 For this child care centre, the mechanical plant units have been considered to be placed in the drying court of the development.

4 An updated noise assessment is to be undertaken once mechanical selection has been finalised.

5 For the outdoor play area, a 1600mm-1800mm barrier surrounding the outdoor play area (as shown on the drawing attached in Appendix A) are required.

6 Otherwise, a 1800mm standard colourbond fence has been utilised where denoted on plans.

7 To determine the restriction to the parking, a point noise source was located in each car bay.

8 Modelling shows that noise received at the neighbouring residences from car doors closing would comply with the assigned noise level for the day time period periods.

9 To comply during the night time periods, the two northmost bays would need to be restricted prior to 0700 as shown in Appendix A. This can be managed by signage on the bays.

10 With only staff arriving before 0700, there would be no car starts before 0700.

11 Calculations were undertaken for the receivers at 1.5 metres above the ground level.

12 Noise modelling was undertaken to a number of different receiver locations for each of the neighbouring residences. However, to simplify the assessment, only the noise level in the worst case location (i.e. highest noise level), have been listed.

13 Noise modelling undertaken is typically conservative in nature under 'worst case' scenarios to ensure that compliance is achieved at all times.

6. ASSESSMENT

The tables below show the assessment of noise emissions of concern from the operation. Standard building construction will be sufficient to ensure that noise from inside the building will meet the regulations.

The resultant noise levels at the neighbouring residences from children playing outdoors and mechanical plant are tabulated in Table 6.1.

From previous measurements, noise emissions from children playing does not contain any annoying characteristics, however mechanical plant emissions would be considered tonal and attract a +5 dB(A) Penalty. Noise emissions from outdoor play needs to comply with the assigned L_{A10} noise levels.

TABLE 6.1 - ACOUSTIC MODELLING RESULTS FOR L_{A10} CRITERIA OUTDOOR PLAY AREAS AND MECHANICAL PLANT

Neighbouring Premises	Calculated Noise Level (dB(A))	
	Children Playing	Mechanical Plant
R1 Residential	45	30 (35)
R2 Residential	39	9 (14)
R3 Residential	43	18 (23)
R4 Community Centre	33	30 (35)

( ) Includes +5 dB(A) penalty for tonality

With regards to noise associated with cars within the parking area, resultant noise levels are tabulated in Tables 6.2 and 6.3. It is noted that noise emissions from a moving car being an L_{A1} noise level, with noise emissions from cars starting and doors closing being an L_{Amax} noise level.

Based on the definitions of tonality, noise emissions from car movements and car starts, being an L_{A1} and L_{AMax} respectively, being present for less than 10% of the time, would not be considered tonal. Thus, no penalties would be applicable, and the assessment would be as listed in Table 6.2 (Car Moving) and Table 6.3 (Car Starting). However, noise emissions from car doors closing could be impulsive, hence the +10dB penalty has been included in the assessment.

TABLE 6.2 - ACOUSTIC MODELLING RESULTS L_{A1} CRITERIA
CAR MOVING

Neighbouring Premises	Calculated Noise Level (dB(A))
R1 Residential	36
R2 Residential	34
R3 Residential	45
R4 Community Centre	37

TABLE 6.3 - ACOUSTIC MODELLING RESULTS L_{Amax} CRITERIA
CAR STARTING / DOOR CLOSING

Neighbouring Premises	Calculated Noise Level (dB(A))			
	Car Start		Car Door	
	Day Period	Night Period	Day Period	Night Period
R1 Residential	38	38	39 [49]	39 [49]
R2 Residential	28	28	31 [41]	31 [41]
R3 Residential	46	44	47 [57]	45 [55]
R4 Community Centre	40	40	41 [51]	41 [51]

[ ] Includes +10 dB(A) penalty for impulsiveness.

Tables 6.4 to 6.10 summarise the applicable Assigned Noise Levels, and assessable noise level emissions for each identified noise.

TABLE 6.4 – ASSESSMENT OF L_{A10} NOISE LEVEL EMISSIONS
OUTDOOR PLAY (DAY PERIOD)

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
R1 Residential	45	45	Complies
R2 Residential	39	45	Complies
R3 Residential	43	45	Complies
R4 Community Centre	33	45	Complies

TABLE 6.5 – ASSESSMENT OF L_{A10} NIGHT PERIOD NOISE LEVEL EMISSIONS
MECHANICAL PLANT

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
R1 Residential	35	35	Complies
R2 Residential	14	35	Complies
R3 Residential	23	35	Complies
R4 Community Centre	35	35	Complies

TABLE 6.6 – ASSESSMENT OF L_{A1} NIGHT PERIOD NOISE LEVEL EMISSIONS
CAR MOVEMENTS

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
R1 Residential	36	45	Complies
R2 Residential	34	45	Complies
R3 Residential	45	45	Complies
R4 Community Centre	37	45	Complies

TABLE 6.7 – ASSESSMENT OF L_{Amax} DAY PERIOD NOISE LEVEL EMISSIONS CAR STARTING

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
R1 Residential	38	65	Complies
R2 Residential	28	65	Complies
R3 Residential	46	65	Complies
R4 Community Centre	40	65	Complies

TABLE 6.8 – ASSESSMENT OF L_{Amax} NIGHT PERIOD NOISE LEVEL EMISSIONS CAR STARTING

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
R1 Residential	38	55	Complies
R2 Residential	28	55	Complies
R3 Residential	44	55	Complies
R4 Community Centre	40	55	Complies

TABLE 6.9 – ASSESSMENT OF L_{Amax} DAY PERIOD NOISE LEVEL EMISSIONS CAR DOOR

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
R1 Residential	49	65	Complies
R2 Residential	41	65	Complies
R3 Residential	57	65	Complies
R4 Community Centre	51	65	Complies

TABLE 6.10 – ASSESSMENT OF L_{Amax} NIGHT PERIOD NOISE LEVEL EMISSIONS CAR DOOR

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
R1 Residential	49	55	Complies
R2 Residential	41	55	Complies
R3 Residential	55	55	Complies
R4 Community Centre	51	55	Complies

7. CONCLUSION

Noise received at the neighbouring residences from the outdoor play area would comply during the day period, thus, outdoor play would be limited to the day period (ie – after 0700) with an acoustic barrier as shown in Appendix A.

Noise received at the neighbouring residences from the mechanical plant would comply at all hours given placement in the drying court.

Noise received at the neighbouring residences from noise associated with vehicles would also comply at all hours, except for car doors outside of the day period. For compliance, car bays to the north would need to be restricted prior to 0700 as shown in Appendix A.

Thus, noise emissions from the proposed development, would be deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed hours of operation, with the inclusion of the following:

1 For the outdoor play area, a 1600-1800mm fence surrounding outdoor play area (as shown on the drawing attached in Appendix A) would be required. A limestone pier and infill with visually permeable fence is denoted on plans and as of such a Perspex (or similar solid) infill to meet the visually permeable requirement would be appropriate. For other locations a colorbond fence would be sufficient.

2 Mechanical plant have been placed in the drying court. Once mechanical selection has been finalised an updated acoustic report based upon selection would be required.

3 Car bays to the south shown in Appendix A would need to be restricted prior to 0700.

Finally, it is recommended to adopt best practices in managing a child care centre to reduce noise, including but not limited to no amplified music to be played outside, and favouring soft finishes in the outdoor play area.

APPENDIX A

PLANS

Note: Acoustic Fence must be solid and continuous to prescribed height including retaining;
ie colorbond, masonry, etc.

If permeable fence is required, the permeable area must be solid;
ie Perspex, plastic, glass and not slats

Areas above the prescribed height may consist of any material.

Minimum 1600mm Acoustic Fence

Carbays Restricted Prior to 0700

Minimum 1800mm Acoustic Fence

Proposed Parking Lot

Stormwater Layout

4 Browning Road
Armadale WA 6112
Phone: (08) 9399 6715
Fax: (08) 9399 8564
admin@iqconstruction.com.au

REV	DATE	DESCRIPTION	BY	CHK
4	26 Mar. '26	Door Placements	SV	DB
3	24 Feb. '26	Planning	WM	DB
2	04 Dec. '25	Concept	WM	
1	02 Dec. '25	Concept	WM	

NOTES
All areas are approximate only. Design is subject to site conditions, location of services, energy efficiency compliance and approval of relevant authorities.

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CLIENT
ADDRESS

Ravenswood Childcare
Lot 977 Nancarrow Way, Ravenswood

DRAWING: Stormwater Plan
PAPER SIZE: A2
PROJECT NO: 1609
DRAWN: WM
CHECK: SV
DATE: 02 Dec. '25
PROJECT STAGE: PLANNING
SCALE: 1:100
DRAWING NO: P104
REV 4


Receivers
R2
R4
R3
R1

Integrated Consulting
Planning | Bushfire | Surveying

Our Ref.: 26057-L01_B

Chief Executive Officer
Shire of Murray
1915 Pinjarra Road
Pinjarra WA 6208

29 May 2026

Attention: Greg Delahunty

Dear Sir

PEER REVIEW OF METHOD 2 BAL ASSESSMENT – LOT 977 NANCARROW WAY, RAVENSWOOD

1 INTRODUCTION

The Shire of Murray (the Shire) has received a Development Application (DA) for a Childcare Centre to be located on Lot 977 P411195, known as Lot 977 Nancarrow Way, Ravenswood. The site is mapped as being within a Bush Fire Prone Area (BFPA) on the Department of Fire & Emergency Service's (DFES) Map of Bush Fire Prone Areas[1].

A Bushfire Management Plan (BMP) was lodged as part of the DA documentation. The BMP was prepared by Bushfire Prone Planning (BPP) and authored by a Bushfire Planning and Design (BPAD) Level 3 Accredited Practitioner. The BMP is for a vulnerable land use and includes, *inter alia*, use of the Detailed Method for determining the Bushfire Attack Level (BAL) – Method 2 (Method 2 Assessment) as provided in *Australian Standard AS3959: 2018 Construction of buildings in bushfire-prone areas* (AS3959)[2].

The Shire referred the DA, including the BMP, to DFES pursuant to Section 9.2 of *Planning for Bushfire Guidelines*[3] (PBG) to seek comments and advice on as the development is a vulnerable land use. Amongst other things, DFES advised via letter dated 15 April 2026, that it did not support the inputs used in the Method 2 Assessment for Area 3. BPP subsequently (16 April 2026) provided additional information to justify the inputs used for the Method 2 Assessment. On 1 May 2026, DFES advised the Shire that its advice was unchanged despite the additional information provided by BPP.

The Shire has therefore sought a peer review of the Method 2 Assessment the subject of disagreement between DFES and BPP. This letter provides a peer review of the Method 2 Assessment for Area 3 within the BMP.

The location of the site and the subject Area 3 is shown in **Figure 1** and **Figure 2** in **Attachment 1**.

[1] https://maps.slip.wa.gov.au/landgate/bushfireprone/
[2] Standards Australia, 2018. Australian Standard AS3959: 2018 Construction of buildings in bushfire-prone areas, Standards Australia, Sydney.
[3] Department of Planning, Lands and Heritage, 2024. Planning for Bushfire Guidelines: for the implementation of State Planning Policy 3.7 Bushfire, Western Australian Planning Commission, Perth.

2 QUALIFICATIONS OF REVIEW AUTHOR

I have the following academic qualifications:

- Graduate Diploma in Bushfire Protection with Distinction (University of Western Sydney)
- Graduate Certificate in Development Planning (Curtin University of Technology)
- Graduate Diploma in Natural Resources (University of New England)
- Bachelor of Urban and Regional Planning with Honours (University of New England)

I am accredited:

- by the Fire Protection Association Australia (FPAA) under the Bushfire Planning and Design (BPAD) Scheme (BPAD36371) as a Level 3 Accredited Practitioner in New South Wales (NSW) and Western Australia (WA). The NSW Rural Fire Service (RFS) recognise this accreditation as "as a person who is qualified consultant in bush fire risk assessment" for the purposes of environmental planning legislation.
- By the Planning Institute of Australia (PIA) as a Registered Planner (NSW).

I have 26 years' experience working in the planning industry, with the most recent 13 years also incorporating bushfire planning. My experience has been both working in the private sector for various consultancies as well as for local government and consulting for both local and state government. My work includes both NSW and WA.

3 DOCUMENTS USED IN THE REVIEW

I have reviewed the following documents/information in preparing this review:

- *State Planning Policy 3.7 Bushfire* (November 2024),
- *Planning for Bushfire Guidelines* (November 2024),
- *AS3959 Construction of buildings in bushfire-prone areas,*
- *Visual Guide for bushfire risk assessment in Western Australia* (2016),
- *National Construction Code 2022 Volume One Building Code of Australia,*
- *Bushfire Management Plan,* prepared by BPP, Reference 260023, dated 16 February 2026,
- Letter response to DFES Comments, prepared by BPP, Reference 260023, dated 16 April 2026,
- DFES Letter to Shire of Murray, dated 15 April 2026,
- DFES Email to Shire of Murray, dated 1 May 2026,
- Shire of Murray approved Landscape Plan for Reserve R52545,
- Nearmap – Aerial Imagery,
- DPIRD 2m contours, and
- Landgate Cadastre & Roads.

4 PEER REVIEW

4.1 Legislative Requirements

Section A.4 of PBG provides that a BAL Assessment is to be prepared in accordance with AS3959 and can utilise Method 1 or Method 2.

4.2 Methodology

The methodology used for this peer review is provided in Appendix B of AS3959.

4.3 Review of Assessment Inputs

The following table provides a review of the assessment inputs used in the BMP BAL Assessment for Area 3.

Table 1: Review of Assessment Inputs

Step	Requirement	BAL Assessment Response	Review Comment
1	Determine the relevant FDI or wind speed in accordance with Paragraph B2.	• Identified FDI 80.	• Table B1 identifies a wind speed of 45km/h for shrub vegetation classification. • No mention of wind speed in the BAL assessment • The FlameSol method 2 calculator should have applied the default wind speed for Class D Scrub. Therefore even though it was not outlined in the report, it is expected to be correct.
2	Determine the vegetation classification, fuel loads and vegetation height in accordance with Paragraph B3.	• Classed as Class D Scrub	• No photos provided within BAL Assessment of Vegetation Area 3 directly adjacent to the development site. Photos were provided in Additional information response. • The landscape plan shows the area of POS forms a stormwater detention basin comprised of: • a basin floor planted with • wetland grass species chosen for the water quality management attributes. • The area also contains melaleuca, grevilleas, and other low shrubs suitable for areas of inundation. The species listed on the landscape plan are comprised of ground covers <1m mature height, low shrubs <2m mature height, and tall shrubs ≤ 5m. • Three (3) eucalypts have been planted within this landscaped basin area, one (1) on the northern side and two (2) planted together on the southern side. • Otherwise, the stormwater detention basin is a mown grassed area. • Further photographs have been reviewed of this vegetation area provided by Council staff under my direction, which are provided in **Attachment 1**. • The *Visual Guide for Bushfire Risk Assessment in Western Australia*[4] identifies that: • Scrub vegetation is characterised typically by continuous horizontal and vertical vegetation structures, with a height greater than two metres. • Forest is characterised as comprising trees with 10–30 metres height, with foliage cover in the range of 30 per cent to 70 per cent at maturity, predominantly dominated by Eucalypts. Sclerophyllous understorey (vegetation that has hard leaves and short internodes [the distance between leaves along the stem]), small trees, tall scrubs or tall shrubs. Forests generally have several layers of tiered

[4] Department of Planning, 2016. *Visual Guide for Bushfire Risk Assessment in Western Australia*, Department of Planning, Perth.

Table 1: Review of Assessment Inputs

Step	Requirement	BAL Assessment Response	Review Comment
			vegetation arranged vertically extending from the surface to the canopy including a pronounced shrubby middle layer in addition to a taller canopy and an underlying layer of grasses, herbs or sedges. • The vegetation present on site, and expected to be present on site at maturity, is comprised of continuous horizontal and vertical vegetation structures. The presence of three (3) eucalypts at the northern and southern extents of the vegetation area does not provide sufficient presence or canopy cover to warrant classification as forest. It is reasonably expected that over time this vegetation area would not transform to comprise a greater presence of eucalypts, due to having the function as a stormwater detention basin and being under Shire management. • From the evidence available on the planted species, photographic evidence, and the fact that the site is a Shire owned and managed parcel of land, it is concluded that the vegetation area can and should be classified as Class D Scrub. • The Shire has advised that it has agreed to managed the eastern most 6m of this Vegetation Area in the POS to meet its obligations under the Bushfire Act, to the following standards: • Removal of dead vegetation and accumulated fine fuels • Under-pruning of trees to a height of 2 m • Improving vertical and horizontal separation between groundcovers, shrubs and tree canopies • Where practicable, the inclusion of irrigation to increase vegetation and soil moisture content. • The proposed management measures within the 6m strip are not sufficient to be certain this area would become a low-threat exclusion pursuant to clause 2.2.3.2(f).
3	Determine the effective slope under the classified vegetation in accordance with Paragraph B4.	• Table 3.2 states "Flat 0" degrees. Appendix A States "Measured Flat 0 degrees". • No plan showing where slope has been measured	• The landscape plans show (refer **Figure 3**) that moving from the development site boundary in a westward direction through Vegetation Area 3: • there is a 2m flat area directly adjacent to the development site boundary, • followed by a 6m wide downslope measured at 10 degrees, • followed by a generally flat area within the detention basin. • Based on the available evidence it is expected that:

Table 1: Review of Assessment Inputs

Step	Requirement	BAL Assessment Response	Review Comment
			• there would be a ~ 6m deep strip (setback 2m from the boundary) that would have a slope in the order of 10 degrees. • The balance of the vegetation area would be relatively flat. There would be some minor grading in order to drain to any external stormwater drainage infrastructure, however, this is expected to have negligible impact on bushfire behaviour and can be considered flat. • Effective slope is defined in AS3959 as: *The slope under that classified vegetation which most influences the bushfire attack (see Figure 2.3).* Section 2.2.5 of AS3959 further states: *Where there is more than one slope within the classified vegetation, each slope shall be individually assessed and the worst-case Bushfire Attack Level shall apply.* • Whilst the report does provide extensive commentary on effective slope and consideration of situations where there are varying slopes, the report does not provide any indication of where the slope for this assessment has been measured. Nor is there a detail/level survey provided by a surveyor within the report. • Based on the information available, it cannot be concluded that the slope should not be downslope.
4	Determine the slope, in degrees, of the land between the site and the classified vegetation in accordance with Paragraph B5.	• Table 3.2 states "default". • Appendix A3 states site slope 0 degrees	• From the available data this would appear correct.

Table 1: Review of Assessment Inputs

Step	Requirement	BAL Assessment Response	Review Comment
5	Determine the distance of the site from classified vegetation in accordance with Paragraph B6.	• Figure 3.2 shows a minimum 4m setback to the western boundary of the site. It shows a further 6m separation distance from the western site boundary and the start of Area 3. This 6m separation distance is identified as managed vegetation.	• As outlined in Step 2 above, without further management of the 6m wide "managed vegetation strip", it cannot be included in the separation distance. • Therefore, the separation distance based on the information provided should be 4m, being the setback distance between the boundary and the proposed building.
6	Calculate the flame length in accordance with Paragraph B7.	• Table 3.2 states flame length is 26m.	• Even modelled at all Methods 2 defaults, flame length is a maximum of 11.63m. • It appears, however, that this may be a typo within the report, as the assessment achieves the correct outcome.
7	Determine flame width in accordance with Paragraph B8.	• Table 3.2 states the flame width used of 10m	• The default flame width used for modelling is 100m. • Vegetation width of the area varies between 27m – 41m. • Reduction in flame width would be appropriate to use in this area due to the width of the available vegetation being substantially less than 100m. • Using the DFES Short fire run calculator, a fire run of 26m would achieve a flame width of 9.52m, which rounded up achieves the 10m stated. • However, this fire run assumes a 6m managed strip. • With a 32m fire run (no managed strip), the flame width widens to 11.71m (12m).
8	Determine the elevation of receiver in accordance with Paragraph B9.	• Default has been used	• This is acceptable as it will default to the worst elevation.
9	Calculate the radiant heat flux in accordance with Paragraph B10.	• 28.55kW/m² at 10m separation distance based on flat ES & SS.	• Re-calculation of the RHF based on the inputs used in the BMP result in 28.55kW/m² (refer scenario A of **Table 3**). • This calculation relies upon the 6m managed vegetation strip, which as outlined in Step 2 above, without further management of the 6m wide "managed vegetation strip", it cannot be included in the separation distance. • As outlined in scenarios B & C of **Table 3**, removing the 6m managed strip will result in >40kW/m² RHF.

Table 1: Review of Assessment Inputs

Step	Requirement	BAL Assessment Response	Review Comment
10	Determine the Bushfire Attack Level in accordance with Paragraph B11.	• BAL-29	• Re-calculation of the RHF based on the inputs used in the BMP results in BAL-29. • As outlined above, this calculation relies upon the 6m managed vegetation strip, which without further management of the 6m wide "managed vegetation strip", it cannot be included in the separation distance. • As outlined in scenarios B & C of **Table 3**, removing the 6m managed strip will result in BAL-FZ.

4.4 Summary of Findings

The peer review has determined:

- The following components of the assessment are validated:
    - Vegetation Classification,
    - Site Slope,
    - Elevation of the receiver, and
    - Use of the Short Fire Run methodology.
- The following components of the assessment were insufficiently documented, but would not impact outcomes:
    - Wind speed,
    - Flame Length
- The following components of the assessment were insufficiently documented and are likely to impact the outcomes:
    - Effective Slope
- The following components of the assessment were erroneously documented and will impact the outcomes:
    - Separation Distance
    - Flame width

Overall, the two (2) key issues are that:

- The 6m "managed strip" would not achieve the standard required to form a AS3959 Clause 2.2.3.2(f) exclusion, and
- The effective slope utilised has not been adequately documented to enable the "flat" determination.

5 SUGGESTED ALTERNATIVES

Other modelling scenarios have been considered for Vegetation Area to recognise the restricted fuel availability in the constrained vegetation and the modified rate of spread to recognise the scenario would not achieve the equilibrium rate of spread[5][6]. These alternate scenarios did not result in any different outcomes.

In order to progress this application, the following is suggested:

1. Accurately determine the effective slope within the Vegetation Area 3. This is to be achieved by way of obtaining a detail/level survey prepared by a land surveyor for the entire extent of Area 3 (as shown in **Figure 2**). A subsequent documented assessment of effective slope is to then be carried out to determine the slope which most influences the bushfire attack.

   N.B. if the effective slope changes from flat, then a revised BAL assessment will be required to determine the required separation distance to achieve BAL-29.

2. Either:

   a. Provide greater management of the "managed vegetation" strip to ensure it achieves the AS3959 clause 2.2.3.2(f) exclusion in perpetuity. It is suggested that the vegetation should be manipulated to provide for an area where manicured grass is provided (like the balance of the detention basin) with any trees/shrubs being separated (i.e. not connected by canopy) from the balance of the Area 3 vegetation.

      N.B. the separation distance will need confirmed following addressing Item 1 above.

[5] Penney, Greg, and Steven Richardson. 2019. "Modelling of the Radiant Heat Flux and Rate of Spread of Wildfire within the Urban Environment" Fire 2, no. 1: 4. https://doi.org/10.3390/fire2010004
[6] Penney G, et al. (2020) A Handbook of Wildfire Engineering. Bushfire and Natural Hazards Cooperative Research Centre, Melbourne

or

b. Relocate/redesign the proposed building to provide separation distance wholly on the development site and not rely upon a managed vegetation strip within the POS lot.

N.B. the separation distance will need confirmed following addressing Item 1 above.

If you have any questions regarding this matter, please contact the undersigned on 0400 940 482.

Yours sincerely

Erika Dawson
Director | BPAD Level 3 Accredited Practitioner (NSW & WA) | Registered Planner PIA

Attachments:
1. Figures
2. Photographs
3. Method 2 Calculation Inputs & Outcomes
4. Method 2 Calculations

Attachment 1 – Figures



Figure 1: Site Location



Figure 2: Subject Vegetation Area

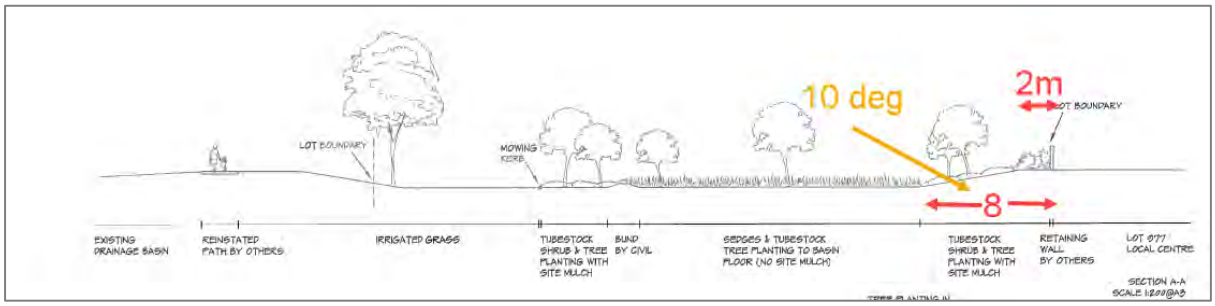


Figure 3: Excerpt from Landscaping Plans

Attachment 2 – Photographs



Plate 1: view to site and POS from Jones Lane



Plate 2: View to POS from Jones Lane



Plate 3: View to northern end of Vegetation Area 3 within POS



Plate 4: View to northern end of centre section of Vegetation Area 3 within POS



Plate 5: View to northern end of centre section of Vegetation Area 3 within POS



Plate 6: View to western end of centre section of Vegetation Area 3 within POS



Plate 7: View to western end of centre section of Vegetation Area 3 within POS



Plate 8:View to southwestern end of centre section of Vegetation Area 3 within POS



Plate 9:View to southwestern end of Vegetation Area 3 within POS



Plate 10:View to southern end of Vegetation Area 3 within POS

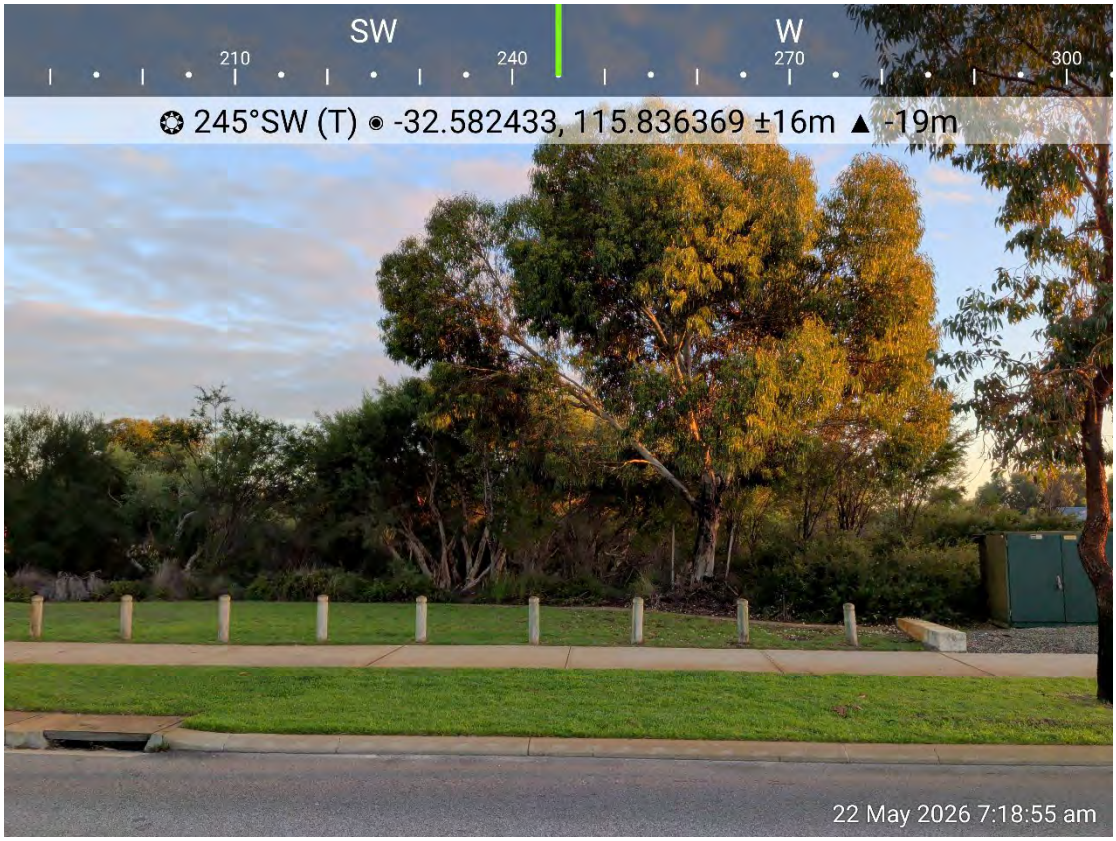


Plate 11:View to southern end of Vegetation Area 3 within POS

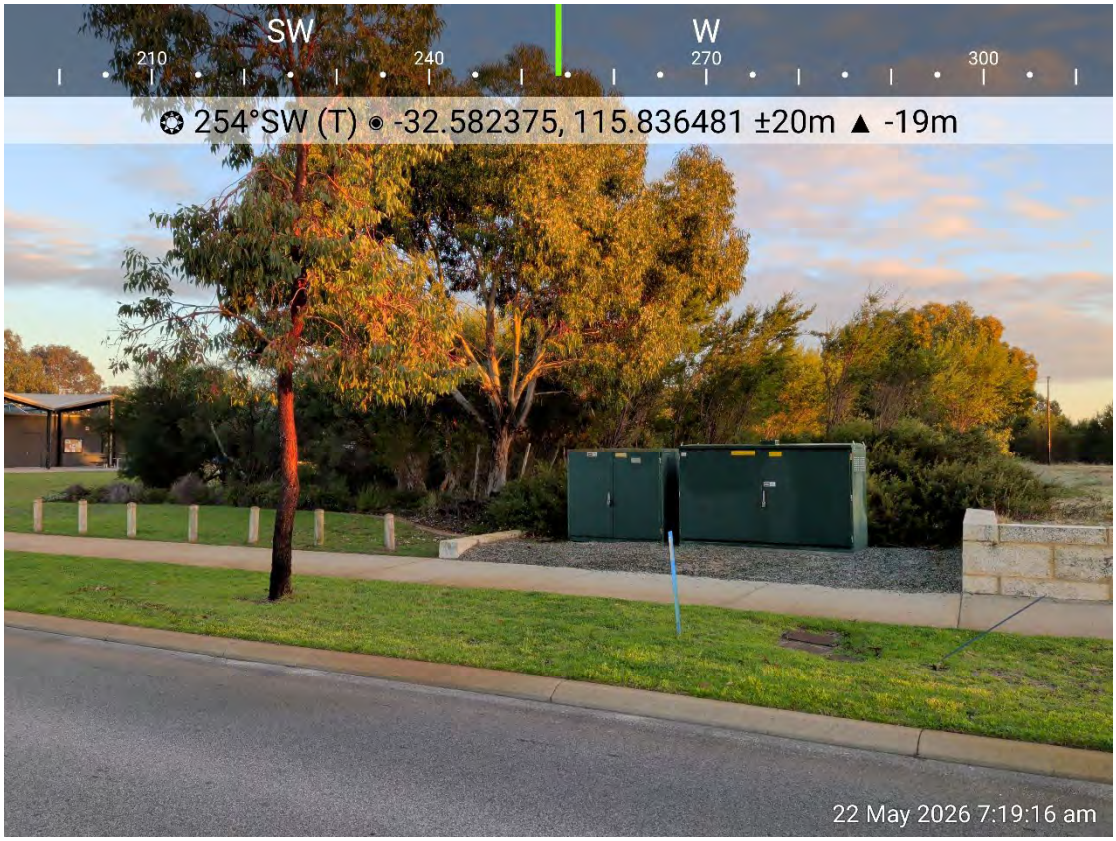


Plate 12:View to southern end of Vegetation Area 3 within POS and Development Site



Plate 13:View to southern end of Vegetation Area 3 within POS from development site



Plate 14:View to centre section of Vegetation Area 3 within POS from development site



Plate 15:View to northern end of Vegetation Area 3 within POS from development site



Plate 16:View to northern end of Vegetation Area 3 within POS from development site

Attachment 3 – Method 2 Calculation Inputs & Outcomes

Table 2: Method 2 AS3959 Calculations

No	Scenario	FDI/Wind Speed	Vegetation Classification	Effective Slope	Site Slope	Separation Distance (m)	Flame Length (m)	Flame Width (m)	Elevation of Receiver	RHF (kW/m²)	BAL
1a	Standard Using BMP inputs	45km/h	Class D Scrub	Flat	Flat	4	11.63	100 (default)	Default (peak)	76.03	BAL-FZ
1b	Standard Using BMP inputs	45km/h	Class D Scrub	Downslope >5°-10°	Flat	6	15.97	100 (default)	Default (peak)	76.03	BAL-FZ
1c	Standard using BMP inputs + 6m managed land	45km/h	Class D Scrub	Downslope >5°-10°	Flat	10	15.97	100 (default)	Default (peak)	53.97	BAL-FZ
1d	Standard using BMP inputs + 6m managed land + flat	45km/h	Class D Scrub	Flat	Flat	10	11.63	100 (default)	Default (peak)	38.72	BAL-40

Table 3: RFS Short Fire Run Calculations

Scenario	effective slope	site slope	elevation of receiver	vegetation formation and fuel load	Fuel Load	distance from asset to vegetation	measured SFR length	Flame Width[2]	SFR Radiation (kW/m²)	BAL
A	Flat	Flat	Default (peak)	Class D Scrub	25t/ha[1]	10m	26m	10m	28.55	BAL-29
B	Flat	Flat	Default (peak)	Class D Scrub	25t/ha[1]	4m	32m	12m	76.03	BAL-FZ
C	Downslope >5°-10°	Flat	Default (peak)	Class D Scrub	25t/ha[1]	6m	32m	12m	76.03	BAL-FZ

Notes:

1 Table B3 AS3959

2 Determined from DFES Short Fire Run

Attachment 4 – Method 2 Calculations

NBC Bushfire Attack Assessment Report V4.0

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 25/05/2026 **Assessment Date:** 25/05/2026

Site Street Address: Lot 977 Nancarrow, ravenswood

Assessor: Erika Dawson; Integrated Consulting

Local Government Area: WA **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: A

Vegetation Information

Vegetation Type: Scrub/Tall Heath
Vegetation Group: Shrub & Heath
Vegetation Slope: 0 Degrees **Vegetation Slope Type:** Downslope
Surface Fuel Load(t/ha): 25 **Overall Fuel Load(t/ha):** 25
Vegetation Height(m): 3 Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope 0 Degrees **Site Slope Type:** Downslope
Elevation of Receiver(m) Default **APZ/Separation(m):** 10

Fire Inputs

Veg./Flame Width(m): 10 **Flame Temp(K):** 1090

Calculation Parameters

Flame Emissivity: 95 **Relative Humidity(%):** 25
Heat of Combustion(kJ/kg 18600 **Ambient Temp(K):** 308
Moisture Factor: 5 **FDI:** 80

Program Outputs

Level of Construction: BAL FZ **Peak Elevation of Receiver(m):** 3.74
Radiant Heat(kW/m2): 28.55 **Flame Angle (degrees):** 40
Flame Length(m): 11.63 **Maximum View Factor:** 0.426
Rate Of Spread (km/h): 4.17 **Inner Protection Area(m):** 10
Transmissivity: 0.881 **Outer Protection Area(m):** 0
Fire Intensity(kW/m): 53816

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	8	10	12	14	19	6

NBC Bushfire Attack Assessment Report V4.0

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 25/05/2026 **Assessment Date:** 25/05/2026

Site Street Address: Lot 977 Nancarrow, ravenswood

Assessor: Erika Dawson; Integrated Consulting

Local Government Area: WA **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: B

Vegetation Information

Vegetation Type: Scrub/Tall Heath
Vegetation Group: Shrub & Heath
Vegetation Slope: 0 Degrees **Vegetation Slope Type:** Level
Surface Fuel Load(t/ha): 25 **Overall Fuel Load(t/ha):** 25
Vegetation Height(m): 3 Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope 0 Degrees **Site Slope Type:** Level
Elevation of Receiver(m) Default **APZ/Separation(m):** 4

Fire Inputs

Veg./Flame Width(m): 12 **Flame Temp(K):** 1090

Calculation Parameters

Flame Emissivity: 95 **Relative Humidity(%):** 25
Heat of Combustion(kJ/kg 18600 **Ambient Temp(K):** 308
Moisture Factor: 5 **FDI:** 80

Program Outputs

Level of Construction: BAL FZ **Peak Elevation of Receiver(m):** 0
Radiant Heat(kW/m2): 76.03 **Flame Angle (degrees):** 0
Flame Length(m): 11.63 **Maximum View Factor:** 1
Rate Of Spread (km/h): 4.17 **Inner Protection Area(m):** 4
Transmissivity: 1 **Outer Protection Area(m):** 0
Fire Intensity(kW/m): 53816

NBC Bushfire Attack Assessment Report V4.0

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 25/05/2026 **Assessment Date:** 25/05/2026

Site Street Address: Lot 977 Nancarrow, Ravenswood

Assessor: Erika Dawson; Integrated Consulting

Local Government Area: WA **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: C

Vegetation Information

Vegetation Type: Scrub/Tall Heath

Vegetation Group: Shrub & Heath

Vegetation Slope: 10 Degrees **Vegetation Slope Type:** Downslope

Surface Fuel Load(t/ha): 25 **Overall Fuel Load(t/ha):** 25

Vegetation Height(m): 3 Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope 0 Degrees **Site Slope Type:** Level

Elevation of Receiver(m) Default **APZ/Separation(m):** 6

Fire Inputs

Veg./Flame Width(m): 12 **Flame Temp(K):** 1090

Calculation Parameters

Flame Emissivity: 95 **Relative Humidity(%):** 25

Heat of Combustion(kJ/kg 18600 **Ambient Temp(K):** 308

Moisture Factor: 5 **FDI:** 80

Program Outputs

Level of Construction: BAL FZ **Peak Elevation of Receiver(m):** 0

Radiant Heat(kW/m2): 76.03 **Flame Angle (degrees):** 0

Flame Length(m): 15.97 **Maximum View Factor:** 1

Rate Of Spread (km/h): 8.31 **Inner Protection Area(m):** 6

Transmissivity: 1 **Outer Protection Area(m):** 0

Fire Intensity(kW/m): 107294

Greg Delahunty

From: Erika Dawson <erika@integratedconsulting.com.au>
Sent: Tuesday, 9 June 2026 12:45 PM
To: Greg Delahunty
Subject: RE: Method 2 Peer Review

Hi Greg

Yes, in this instance it should be rounded up to the next nearest degree. And then then based on this slope, to achieve 29kW/m^2 we need the separation distance of 11m.

Kind regards,

Erika Dawson
Director | Principal Town Planner & Bushfire Consultant

Integrated Consulting
Planning | Bushfire | Surveying

T: 0400 940 482
A: 77 Keppel Street, Bathurst NSW - PO Box 9026 Bathurst West NSW 2795
E: erika@integratedconsulting.com.au
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BPAD Bushfire Planning & Design Accredited Practitioner Level 3

PIA Registered Planner — Planning Institute Australia

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Liability limited by a scheme approved under Professional Standards Legislation

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From: Greg Delahunty <Gregory.Delahunty@murray.wa.gov.au>
Sent: Tuesday, 9 June 2026 2:38 PM
To: Erika Dawson <erika@integratedconsulting.com.au>
Subject: RE: Method 2 Peer Review

Thanks Erika

Just to clarify, where the effective slope is between 0° and 1° degree, the slope calculation is rounded up to 1° for the purpose of the Method 2 BAL assessment ? therefore the APZ should be 11m and not the 10m proposed by BPP?

Thanks

Greg

Greg Delahunty
Manager Planning and Environment Services

T: +61 8 9531 7642
E: Gregory.Delahunty@murray.wa.gov.au
murray.wa.gov.au

Shire of Murray

PO Box 21, Pinjarra WA 6208.

From: Erika Dawson <erika@integratedconsulting.com.au>
Sent: Tuesday, 9 June 2026 12:17 PM
To: Greg Delahunty <Gregory.Delahunty@murray.wa.gov.au>
Subject: RE: Method 2 Peer Review

Hi Greg

Through the bioretention zone of the basin I calculate <1° using both the spot heights and also looking at the section.

So, this wouldn't change the calcs provided.

Kind regards,

Erika Dawson
Director | Principal Town Planner & Bushfire Consultant

Integrated Consulting
Planning | Bushfire | Surveying

T: 0400 940 482
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LEGEND

- PROPOSED ROAD/KERB
- EXISTING ROAD/KERB
- FUTURE ROAD/KERB
- S — PROPOSED SEWER PIPE
- Sx — EXISTING SEWER PIPE
- Sf — FUTURE SEWER PIPE
- P — EXSITING SEWER PRESSURE MAIN
- W — PROPOSED WATER MAIN
- Wx — EXISTING WATER MAIN
- Wf — FUTURE WATER MAIN
- SD — PROPOSED SUBSOIL DRAIN
- SDf — FUTURE SUBSOIL DRAIN
- SDx — EXISTING SUBSOIL DRAIN
- PROPOSED BOLLARDS
- SEP 2-05 — PROPOSED DRAINAGE STRUCTURE NUMBER
- SEP 1-05 — FUTURE DRAINAGE STRUCTURE NUMBER DENOTES FUTURE
- SEP 3-05 — EXISTING DRAINAGE STRUCTURE NUMBER DENOTES EXISTING
- PROPOSED DRAINAGE PIPE
- Dx — EXISTING DRAINAGE PIPE
- Df — FUTURE DRAINAGE PIPE
- HW JP SEP GP BUP — HEADWALL (HW); JUNCTION PIT (JP) SIDE ENTRY PIT (SEP); GULLY PIT (GP) BUBBLE UP PIT (BUP)
- U/S 42.95 / 450/140.0 / 1.4 / D/S 42.96 — INVERT LEVEL UP STREAM / PIPE DIAMETER / GRADE / LENGTH / INVERT LEVEL DOWN STREAM
- × 6.00 — BASE LEVEL OF BASIN

JONES LANE

CONTRACTOR HALL INSTALL BOLLARDS AT 1.5m CENTRES AS SHOWN

300Ø DRAINAGE PIPE

DRAIN' INV. U/S 5.71 D/S 5.65

Ø DRAINAGE PIPE

DRAIN' INV. U/S 5.00 D/S 4.86

DRAIN' INV. 5.99 5.39

AINAGE PIPE

DRAIN' INV. U/S 5.06 D/S 4.80

REFER ROADS & DRAINAGE PLAN 14-6-88/401 FOR INFORMATION

EXISTING DRAINAGE BASIN
BASE R.L. 5.60

R50305
1055

MAINTAIN EXISTING TREES

CONTRACTOR SHALL INSTALL 2 x JUNCTION PITS IN EXISTING DRAINAGE PIPE & CONNECT TO NEW TWIN 900Ø DRAINAGE PIPES

EXISTING DRAINAGE PIPE & HEAD WALL TO BE REMOVED

CONSTRUCT DRAINAGE OVERFLOW STRUCTURE TO SHIRE OF MURRAY STANDARDS. GRATE R.L. 6.25

U/S 5.30
375/198
15.9
D/S 5.22

U/S 5.19
375/155
3.1
D/S 5.17

JP 10A

JP 08A

JS 08A

REFER ROADS & DRAINAGE PLAN 14-6-88/400 FOR INFORMATION

NANCARROW WAY

JP 08B

JP B3

FUTURE
U/S 5.49
300/60.6
9.1
D/S 5.34

CAP DRAINAGE FOR FUTURE CONNECTION

U/S 5.34
300/60.6
34.5
D/S 4.77

100Ø PVC LATERAL SUBSOIL DRAINS.

CONSTRUCT DRAINAGE BUBBLE UP OUTLET STRUCTURE TO SHIRE OF MURRAY STANDARDS. GRATE R.L. 6.0

OFP B2

BUP B1

THE BIORETENTION ZONE 400mm THICK IS TO HAVE A LOAMY SAND BIOFILTRATION MEDIA (SAND AND GINGIN LOAM MIX) WITH 3-5% ORGANIC MATTER, AND BE A WELL GRADED MATERIAL WITH TOTAL SILT & CLAY CONTENT <3%, ORGANIC MATTER <5%, PHOSPHOROUS CONTENT < 100MG/KG, AND CONDUCTIVITY 150-300MM/HR.

Ø150 PVC SPINE DRAIN

U/S 4.61
600/313
21.9
D/S 4.54

CONTRACTOR SHALL INSTALL BOLLARDS AT 1.5m CENTRES AS SHOWN

Ø150 SUBSOIL DRAIN GRADED AT 1:100 SET 10mm HIGHER THAN THE OUTLET PIPE OF OBF B2

NANCARROW WAY | DRAINAGE RESERVE LOT BOUNDARY | JONES LANE

BIO-RETENTION ZONE

RL 6.60 | RL 6.80 | RL 6.00 | 1:5 YR TWL 6.25

D.G.P. | D.S.E.P. | B.U.P.

1 in 6 | 1 in 3

250mm HIGH OVERFLOW BUND AROUND PERIMETER OF BIO-RETENTION ZONE

0.5m TYP

0.3m COVER

BIO-RETENTION FILTER MATERIAL

100Ø PVC LATERAL SUBSOIL DRAINS GRADED AT 1:100 (300mm COVER). DRAINS SHALL HAVE CLEAN OUT ACCESS WITH HINGED SERVICE COVER SET PROUD OF FINISHED GROUND LEVEL

FUTURE DRAINAGE

CAP DRAINAGE FOR FUTURE CONNECTION

SUBDIVISION DRAINAGE OUTLET
SECTION A
H 1:100
V 1:50

JP 08B | OFP B3 BEND | OFP B2 BEND

J.P. | J.P. | OFP

1 in 6 | 1:5 YR TWL 6.25 | 1 in 3

BIO-RETENTION ZONE

0.5m TYP

250mm HIGH OVERFLOW BUND AROUND PERIMETER OF BIO-RETENTION ZONE

0.3m COVER

FLOOD GATE / NON RETURN VALVE

BIO-RETENTION FILTER MATERIAL

PIPE TO B.U.P 'B1'

150Ø PVC SPINE DRAIN
DRAINS GRADED AT 1:100 (300mm COVER). DRAINS SHALL HAVE CLEAN OUT ACCESS WITH HINGED SERVICE COVER SET PROUD OF FINISHED GROUND LEVEL

DRAINAGE BASIN OVERFLOW
SECTION B
H 1:100
V 1:50

DIAL BEFORE YOU DIG www.1100.com.au

1:100 0m 2.0 4.0 6.0m

1:250 0m 5.0 10.0 15.0m

WAPC: 150443

PROJECT:
LOT 9010 OLD MANDURAH ROAD RAVENSWOOD - STAGE '1'

No.	DATE	REVISION	BY
0	11-2-2015	ISSUED FOR CONSTRUCTION	MEG
B	16-12-2014	ISSUED FOR APPROVAL — NOTES ALTERED, BOLLARDS ADDED	
A	01.10.14	ISSUED FOR CLIENT REVIEW	DPE

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ONLY PLANS WITH NUMERICAL REVISION (REV '1' OR HIGHER) AND SIGNED AS APPROVED SHALL BE USED FOR CONSTRUCTION.

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CLIENT:
D.J. MacCORMICK PROPERTY GROUP
T/A DJM RAVENSWOOD PTY LTD

DRAWING:
ROADS & DRAINAGE DRAINAGE BASIN DETAILS

STATUS: **FOR CONSTRUCTION**

SCALE	1:250
DATE	SEPT '14
DESIGN	DPE
DRAWN	DPE
CHECK	
APP'D	
DRAWING No.	14-6-88/1/430
REV No.	0
ORIGINAL DRAWING SIZE	A1
FILE NAME	S:\ACTIVE PROJECTS\14-06-088\ACAD_STAGE 1\14688-1-430.dwg

NBC Bushfire Attack Assessment Report V4.0

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 29/05/2026 **Assessment Date:** 26/05/2026

Site Street Address: Lot 977 Nancarrow, Ravenswood

Assessor: Erika Dawson; Integrated Consulting

Local Government Area: WA **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: additional run

Vegetation Information

Vegetation Type:	Scrub/Tall Heath		
Vegetation Group:	Shrub & Heath		
Vegetation Slope:	1 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	25	**Overall Fuel Load(t/ha):**	25
Vegetation Height(m):	3	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope	1 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	Default	**APZ/Separation(m):**	11

Fire Inputs

Veg./Flame Width(m):	10	**Flame Temp(K):**	1090

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	80

Program Outputs

Level of Construction:	BAL FZ	**Peak Elevation of Receiver(m):**	3.9
Radiant Heat(kW/m2):	24.2	**Flame Angle (degrees):**	43
Flame Length(m):	12	**Maximum View Factor:**	0.363
Rate Of Spread (km/h):	4.46	**Inner Protection Area(m):**	11
Transmissivity:	0.877	**Outer Protection Area(m):**	0
Fire Intensity(kW/m):	57660		

08 June 2026 *File ref: PLAN_72-02*

Chief Executive Officer
Shire of Murray
attention: Greg Delahunty, Manager – Planning and Environmental Services
email: gregory.delahunty@murray.wa.gov.au

Dear Sir/Madam

RE: REQUEST FOR FINALISATION AND LODGEMENT OF RAR TO DAP
DAP APPLICATION (Ref: DAP/26/03078)
PROPOSED CHILDCARE CENTRE, LOT 977 NANCARROW WAY, RAVENSWOOD

We write to confirm that *PLAN*, in association with *IQ Premium Homes Pty Ltd*, continues to act for *Acquwest Investments Pty Ltd* (**Acquwest**) in respect of this DAP Application for the proposed Childcare Centre at Lot 977 Nancarrow Way, Ravenswood.

This submission is provided jointly with Mr Mike Scott, Director of *Bushfire Prone Planning* (**BPP**) and an accredited Level 3 Bushfire Practitioner.

The purpose is to provide a consolidated summary of the application process and the remaining outstanding matters relevant to it. In doing so, we respectfully request that the Shire now finalise and submit its *Responsible Authority Report* (**RAR**) to the DAP for determination.

Application process

January 2026

1. Pre-lodgement meetings were held with the Shire, attended by Acquwest and BPP. These discussions related to the proposed built form for the childcare centre and the assessment of potential bushfire impacts arising from the small and isolated area of scrub vegetation within the one (1.0) metre deep drainage basin swale located in the adjoining public open space reserve.
2. By email dated 21 January 2026, the Shire confirmed its understanding and commitment to undertake vegetation management within the reserve (identified as Area 3 in the *Bushfire Management Plan* (**BMP**)) to enable the development to be constructed to comply with a BAL-29 rating, in accordance with the *Bush Fires Act 1954*.
3. Following receipt of the Shire's advice, revised preliminary drawings were provided to the Shire on 22 January 2026 for comment prior to formal lodgement. The Shire provided comments later that day.

February/March 2026

4. The formal Development Application, together with the BMP and *Bushfire Emergency Plan* (**BEP**), was lodged. The application was subsequently elected for determination by the DAP with the required Application Forms submitted by email on 5 March 2026.

April 2026

5. DFES provided its referral response to the Shire on 15 April 2026, advising that it did not agree with the Method 2 assumptions for Area 3.

6. BPP responded to the comments of DFES by correspondence dated 16 April 2026, which was forwarded to the Shire on 28 April 2026. (Refer to Attachment 1 – BPP Response to DFES Comments.)

May 2026

7. DFES provided a further round of referral advice in response to BPP's comments, received on 1 May 2026.

8. BPP responded to those further comments on 8 May 2026. (Refer to Attachment 2 – BPP Response to further DFES Comments.)

9. The Shire sought an agreement from Acquwest to obtain an independent peer review of the Method 2 assessment for Area 3, at the Applicant's cost, to assist the Shire in finalising its recommendation to the DAP.

10. Acquwest agreed to that request by email dated 13 May 2026.

11. A draft peer review dated 26 May 2026 was received on 27 May 2026.

Peer review findings

The peer review confirms the following:

12. The Method 2 assumption (short fire run) is supported.

13. The vegetation classification is supported as Class D Scrub, consistent with the BMP.

14. The assessed maximum flame length of 11.63 metres is accepted as correct.

15. A reduction in flame width is considered appropriate in this location, given the vegetation width is substantially less than 100 metres.

16. Additional management measures to the six (6.0) metre wide apron are required to achieve the relevant exclusion requirements under clause 2.2.3.2(f) of AS 3959, and this matter is considered by the Shire (and agreed by BPP) as being able to be appropriately addressed as a condition of approval.

17. The only matter raised by the reviewer that was not able to be accepted relates to the effective slope, which has arisen from the absence of any plan being included in the BMP to illustrate

how the slope had been measured during the field assessment to determine the effective slope as 'flat'.

BPP responded to this issue in correspondence dated 28 May 2026, including a diagram and explanatory material confirming that the relevant dimensions and slope angle were derived from site observations and calculations, and supported by photographs for context. BPP also advised that a detailed survey is not warranted. (Refer to Attachment 3 – BPP Response to Peer Review.)

By email received on 29 May 2026, the Shire expressed the view that a detailed survey would be the only accurate means of establishing the actual ground level below the vegetation and suggested that, based on the additional information provided, the effective slope may be downslope rather than flat.

BPP's position on the remaining issue

18. In response, Mr Scott of BPP maintains his professional opinion that the assessment appropriately captures the worst-case fire behaviour relevant to the site.

19. In summary, BPP's position is that:

- the relevant value is the effective slope in the direction of fire spread toward the proposed building at the time of assessment.
- where compound slopes are present, the applicable input is not necessarily the actual ground slope at every point, but the slope that best represents the worst fire behaviour expected within the drainage basin.
- the area of vegetation within the drainage basin is too small and constrained to support a fully developed fire of the type contemplated by the AS 3959:2018 design fire methodology.
- The small area of the vegetation has appropriately been accounted for in the modelling through the application of a reduced head fire width of 9.2 metres and an effective slope of zero degrees.
- a detailed survey would not materially assist the assessment or alter its outcome.

Other relevant considerations

20. We note the following:

- The DAP approved a 'stop the clock' request to allow additional time for BPP to respond to the peer review comment regarding slope information.
- Mr Scott, as an accredited Level 3 Bushfire Practitioner with substantial practical experience in bushfire behaviour assessment, continues to maintain his assessment and field work, and has provided a response to inform the reviewer of where the slope measurement has been taken during that site assessment. The advice of Mr Scott is that there is no value in undertaking a detailed survey.

- The peer review supports the substantive components of the Method 2 (short fire run) assessment.
- The issue regarding additional management of the six (6.0) metre apron is agreed to be addressed by condition of approval.
- The public open space/drainage basin reserve was originally approved under the 2015 Fire Management Plan for the Ravenswood Estate as a low threat area, was developed in accordance with an approved landscaping plan, and was maintained in that condition by the developer for two (2) years before being handed over to the Shire. The Shire is required through these previous approvals granted for this estate to maintain this reserve in a low bushfire risk low threat condition into perpetuity to meet its obligations under the *Bush Fire Act 1954*.

Request to progress the application

21. In consideration of:

- the detailed responses and expert opinions provided by BPP to the original and subsequent comments of DFES;
- the findings of the independent peer review, which materially support the Method 2 (short fire run) assessment and the response of BPP to the peer review to inform of the measurement taken to establish the effective slope;
- the agreement to address the six (6.0) metre apron management requirements by a condition of approval; and
- the planning and management approval history of the reserve,

it is our view that the Shire has sufficient information to reach a favourable recommendation on the application.

Accordingly, we respectfully request that the Shire now proceed to finalise and submit its RAR to the DAP for determination.

Should staff have any queries regarding this advice, the writer is available on 0414 384 972 or clare@planwa.au.

Yours sincerely

Clare McLean
Director
cc: *Director, Acquwest*
Director, BPP

att. *Attachment 1 – BPP response to DFES comments*
Attachment 2 – BPP response to further DFES comments
Attachment 3 – BPP response to peer review

ATTACHMENT 1

BPP response to DFES comments

BPP RESPONSE TO DFES COMMENTS	
Relevant Authority and Reference Number:	Shire of Murray
Relevant Application:	Development Application - Vulnerable Land Uses
Relevant Document:	Bushfire management Plan v1.0
DFES Comments - Date and Reference Number:	15th April 2026 - 2026/0784
DFES Comments – Subject Matter(s)	Vegetation Classification or Exclusion SPP 3.7 Appendix A – Bushfire Assessment Methodologies Siting and Design – Asset Protection Zone (APZ) Siting and Design - Clearing of native Vegetation
Bushfire Prone Planning (BPP) – Response Date and Reference Number:	16/04/2026 260023

DFES Assessment Note:

The Method 2 calculation provided is not supported for the following reasons:

- The vegetation classification should be Class A Forest, based on the potential for revegetation.
- Photographs are not provided for the vegetation closest to the building, and this vegetation is likely to have the greatest influence on the BAL.
- The 0-degree site slope is not supported as the vegetation is in a stormwater management depression and the building site is elevated with a retaining wall, making it upslope from the vegetation.
- The head fire width of 10 metres is not supported; the dimensions and orientation of the classifiable vegetation to the building are much longer than 10 metres.
- The proposed building site will have the same determined BAL under a valid Method 1 or valid Method 2; there is no need for Method 2, as, due to the lack of hazard separation, a valid outcome will be greater than BAL-29.
- The proposed short fire run is not supported; a short fire run must be verified through a performance application under the National Construction Code, and it is not a Method 2.
- The building is within the flame length of the vegetation, meaning a performance approach is unlikely to reduce the BAL.

Subject Matter 1	Vegetation Classification or Exclusions		
DFES Comments			BPP Response
Issue	Assessment	Action	
Classified Area 3 – not demonstrated	Vegetation Area 3, located to the north, west, and south of the subject site, cannot be substantiated as Class D Scrub with the limited information and photographic evidence provided. Furthermore, under Vegetation Area 3, page 54 in the BMP, the claim of tree height up to 30m exceeds the 6 metre height for Scrub. The potential for revegetation has not been considered. The BMP should detail specifically how the Class D Scrub classification was derived for areas north, west and south of the subject land as opposed to Class A Forest. Additionally, the classification of the vegetation on the adjoining site (reserve) to the subject land has been classified as D Scrub; however, there is no photographic evidence to support this classification. If unsubstantiated, the vegetation classification should be revised to consider the vegetation at maturity as per AS 3959, or the resultant BAL ratings may be inaccurate.	BAL Rating cannot be validated. Further evidence to support the vegetation classification of Area 3 is required.	Comment BPP acknowledges the typo error in the BMP, page 54 (30m tree height) No action required. Additional supporting information Whilst a "30m" tree height has been referenced, it does not form part of the BMP responsibilities and was for information only. The minor error does not require amending the BMP to another version. Comment Additional photos are provided below to substantiate the Scrub Classification. No action is required. Following photos demonstrates Class Scrub Classification. Drainage area looking north 

			Drainage are looking north  Drainage area looking south 

			Area 3 north 100m from subject site taken on an internal firebreak  Area 3 south off Rutherford Vista 

Subject Matter 1	Vegetation Classification or Exclusions		
DFES Comments			BPP Response
Issue	Assessment	Action	

Exclusion Area 1 – not demonstrated	Evidence to support the exclusion of the area (within Area 1) adjacent to the subject site which is proposed to be managed by the Shire of Murray (Shire), is required. It is acknowledged there is an email from the Shire which commits to the management of 6 metres of vegetation on the western boundary of the lot, however this is not considered a legal or binding agreement and would likely be subject to ongoing resource and funding conditions. If unsubstantiated, the vegetation should be classified as per AS 3959, or the resultant BAL ratings may be inaccurate.	BAL Rating cannot be validated. Decision maker to be satisfied that this area of vegetation will be managed to low threat in perpetuity.	Comment The Shire has agreed to manage this area. No Action Required

Subject Matter 2	SPP 3.7 Appendix A - Bushfire Assessment Methodologies

DFES Comments			BPP Response
Issue	Assessment	Action	
Method 2	The Method 2 calculation provided is not supported for the following reasons: 1. The vegetation classification for Area 3 should be Class A Forest, based on the potential for revegetation. 2. Photographs are not provided for the vegetation closest to the building, and this vegetation is likely to have the greatest influence on the BAL. 3. The 0-degree site slope is not supported as the vegetation is in a stormwater management depression and the building site is elevated with a retaining wall, making it upslope from the vegetation. 4. The head fire width of 10 metres is not supported; the dimensions and orientation of the classifiable vegetation to the building are much longer than 10 metres. 5. The proposed building site will have the same determined BAL under a valid Method 1 or valid Method 2; there is no need for Method 2, as, due to the lack of hazard separation, a valid outcome will be greater than BAL-29.	BAL Rating cannot be validated. Method 2 outputs cannot be validated	Comment The small drainage area (Area 3) to the west is approximately 1m in depth and the surrounding land under the classifiable vegetation is flat. The assessed effective slope is 0 degrees. No Action required Additional supporting information 1. Area 3 is D Scrub. See additional photos above. 2. Photos provided above. 3. 4. & 5 Refer provided explanatory information for effective slope and flame width (Short Fire Run) detailed in the BMP, A1.3 Effective Slope & A2.5 Flame Width. 6. & 7 The development of the design fire applied to BAL calculations for the subject site is not an issue that is to be addressed as a performance assessment under the NCC. The BAL determination methodology that is to be applied to the subject site calculations is contained within AS 3959:2018 - it has nothing to do with the NCC.

	6. The proposed short fire run is not supported; a short fire run must be verified through a performance application under the National Construction Code, and it is not a Method 2. 7. The building is within the flame length of the vegetation, meaning a performance approach is unlikely to reduce the BAL		AS 3959:2018 BAL determination methodology applies a 100 m fire width to design fire calculations as being representative of a fully developed bushfire. This is the default input value applied to calculations using Method 1 and Method 2 for 'flame width' (refer to AS 3959:2018 Appendix B (Method 2), B8, Step 7-Flame Width). AS 3959 does not state an assumed minimum fire run length to achieve the 100 m flame width. The default value of 100 m is built on the assumption that the bushfire has a long enough fire run to develop into fire with a 100 m flame width from a single point of ignition. A fire cannot instantly develop a flame width of 100 m unless there is a line of ignitions at least 100 m long. A source and the likelihood of such a multipoint ignition is not realistic for the subject site. Consequently, if a single (or few) points of ignition fire does not have the length of vegetation in which to travel to develop into 100 m flame width, then the flame width applied to calculations can be justifiably reduced as the subject site will not be subject to a fully developed fire. AS 3959:2018 Appendix B (Method 2), B8, Step 7-Flame Width provides for "the use of a justified lesser value". Further evidence of the validity of the applied approach to the subject site is provided by: • DFES acknowledging this issue with their 'Short Fire Run Head Fire Width Calculation' spreadsheet which begins reducing head fire width when the fire run length is less than 271 metres; and • NSW Rural Fire service has a published methodology (Short Fire Run - Methodology for assessing bushfire risk for low risk vegetation) for applying a short fire run to reduce the head fire width applied to calculations. The stated fire run limitation for application of the methodology is 150 metres.

			The maximum fire run in the relevant classified for the subject site is 26 m. BPP stand by the determinations presented in the BMP.

Subject Matter 3	Table 2: Policy Measure 7.1 ii. e. Compliance with the Bushfire Protection Criteria 8: Development – Vulnerable Class 9 Buildings		
DFES Comments			BPP Response
Issue	Assessment	Action	
Siting and Design – Asset Protection Zone (APZ)	A2.2 – not demonstrated The BAL ratings cannot be validated for the reason(s) outlined in Table 1. The proposed building may be located in an area exceeding BAL-29 however there appears to be further opportunities to redesign the development footprint to achieve a lower BAL rating. An appropriately sized APZ cannot be achieved within the lot boundary.	BAL Rating cannot be validated. Modification to the BMP is required to address the Assessment advice in Table 1.	Comment See above comments and information. No Action Required
Siting and Design – Clearing of native vegetation	A2.3 – not demonstrated The BAL ratings rely on substantial clearing of native vegetation. It has not been demonstrated that the proposal is located in an area which minimises the clearing of native vegetation.	BAL Rating cannot be validated. Modification to the BMP is required to address the Assessment advice in Table 1.	Comment The development does not rely on clearing native vegetation. A strip of vegetation adjoining the subject lot will be managed, not removed, as agreed by the Shire. No Action Required

Subject Matter 4	Policy Measure 7.1 iv. and Section 9.4.2 of the Guidelines: DFES Role as Hazard Management Agency (HMA)		
DFES Comments			BPP Response
Issue	Assessment	Action	

Building Construction Standards	It is acknowledged that the transition period for Class 9b primary and secondary schools and class 9b early childhood centres (and any Class 10a building or desk immediately adjacent or connected to buildings of these types) to comply with the amended National Construction Code Specification 43 has been extended until 30 April 2028. However, DFES is of the opinion that all Class 9 buildings should be afforded significant protection from the impacts of a bushfire due to being occupied by people who may need assistance, or be unable, to evacuate the building in the event of a bushfire. The changes include but are not limited to; minimum separation between buildings, and separation from allotment boundaries, carparking areas and hazards. It is suggested the decision maker consider applying the higher construction and design standards to the proposed development. Further information regarding the changes can be found here: Specification 43 Bushfire protection for certain Class 9 buildings | NCC	Comment only	No Action Required
Bushfire Emergency Plan (BEP)	The referral has included a 'Bushfire Emergency Plan' for the purposes of addressing the policy requirements. Consideration should be given to the Bushfire Emergency Plan (BEP) Manual (as published by the Western Australian Planning Commission). This contains details of information that should be included in a BEP and will ensure the appropriate content is detailed when finalising the BEP to the satisfaction of the Shire of Murray.	Comment only	Comment The BPP BEP provides additional relevant information to the WAPC guidance document. No Action Required

DFES Bushfire Technical Services	The Method 2 calculation provided is not supported for the following reasons: 8. The vegetation classification should be Class A Forest, based on the potential for revegetation. 9. Photographs are not provided for the vegetation closest to the building, and this vegetation is likely to have the greatest influence on the BAL. 10. The 0-degree site slope is not supported as the vegetation is in a stormwater management depression and the building site is elevated with a retaining wall, making it upslope from the vegetation. 11. The head fire width of 10 metres is not supported; the dimensions and orientation of the classifiable vegetation to the building are much longer than 10 metres. 12. The proposed building site will have the same determined BAL under a valid Method 1 or valid Method 2; there is no need for Method 2, as, due to the lack of hazard separation, a valid outcome will be greater than BAL-29. 13. The proposed short fire run is not supported; a short fire run must be verified through a performance application under the National Construction Code, and it is not a Method 2. 14. The building is within the flame length of the vegetation, meaning a performance approach is unlikely to reduce the BAL.	Modification to the BMP is required to address the Assessment advice.	Comment See justification above

ATTACHMENT 2

BPP response to further DFES comments

From:	Clare McLean
To:	Greg Delahunty
Cc:	Mike Scott; Michael Abrusci
Subject:	RE: CM: P085/2026 Lot 977 Nancarrow Way, Ravenswood - Proposed Childcare Centre
Date:	Friday, 8 May 2026 11:05:00 AM
Attachments:	image001.png image003.png image004.png image005.png

Hi Greg

As discussed this morning, responses to each DFES comment (provided in the Shire's email below) have been prepared by Mike Scott, Director of Bushfire Prone Planning (Level 3 Practitioner). Mike is copied into this email and can confirm the advice as his own, if required.

In considering these matters, it is our understanding that the Shire has acknowledged its responsibility to continue managing the adjacent reserve (i.e. Area 3 to the west) to meet its obligations under the *Bushfire Act 1954*. We also understand that this ongoing management approach has been discussed with BPP during previous meetings and that this will enable for the development to achieve a BAL 29 rating.

Further to our discussion, it is noted that if the Shire considers the BMP to include any matters that remain unresolved with the advice of DFES, that it would be beneficial for Mike to attend the DAP Meeting to explain the assessment outcomes to the DAP members.

We would be grateful if the Shire could advise of its position on this, as soon as possible, following its consideration of the responses and BMP documentation now submitted, as we will need to discuss this with Mike and confirm his availability, if required.

Kind regards

Clare McLean
Director

mb: 0414 384 972
email: clare@planwa.au

PLAN
TOWN PLANNING & URBAN DESIGN
Clare McLean
Director
0414 384 972
MPIA, BA (Urban and Regional Studies), GradDip (Applied Heritage Studies)
SCHEME AMENDMENTS | STRUCTURE PLANS | SUBDIVISION | DEVELOPMENT

From: Greg Delahunty <Gregory.Delahunty@murray.wa.gov.au>
Sent: Friday, 1 May 2026 3:44 PM
To: Clare McLean <clare@planwa.au>
Subject: FW: CM: P085/2026 Lot 977 Nancarrow Way, Ravenswood - Proposed Childcare Centre

Hi Clare

See below from DFES

Regards

Greg

DFES response:

- *There is insufficient information to satisfy DFES that the vegetation in Area 3 is Class D Scrub classification. DFES advice remains unchanged.*

BPP response: DFES comments that Area 3 may be revegetated into forest is not supported. It is highly unlikely the Shire will revegetate Area 3 to forest fuels as this will increase exposure from flame, radiant heat and ember attack and increase vulnerability to people and buildings.

- *Section A1.3 in the BMP does not align with AS3959: 2018 clause 2.2.5 which outlines the methodology used to determine the effective slope. AS3959:2018 does not use the parameters of 'significant slope' or 'sufficient slope length' for either a Method 1 or a Method 2 calculation.*

BPP response: The referenced clause presents the basic requirements for determining an effective slope value. It identifies that there is a need to consider variations in slope under the vegetation and account for these (i.e. a compound slope scenario). The stated requirement is to independently consider different slopes and this establishes that the average slope under the vegetation is not the value that is required. This is important to appreciate and the associated commentary for the clause at C2.2.5 is more instructive and better explains the need for this approach by stating "the slope of the land under the classified vegetation has a direct influence on the rate of fire spread, the severity of the fire and the ultimate level of radiant heat flux". This clearly indicates that the effective slope value is to be applied should ensure that the expected fire behaviour within the vegetation on that specific land profile is appropriately accounted for. Consequently, operationally experienced and qualified bushfire practitioners will assess when different slopes will need to be accounted for independently because they will significantly influence bushfire behaviour in the subject vegetation. Equally important is how the practitioner will also be able to assess when slope variations will not present any significant variation in fire behaviour. This includes when the slope variation is minor and when the length of the slope change is too short to support the full depth of a fire flame i.e. only a relatively small part of a fully developed fire will exist on the short slope at a given point in time and consequently the influence on bushfire behaviour is minimal. Bushfire prone planning considers these 'expected bushfire behaviour' matters in their effective slope determinations and the explanation and justification for the applied values is presented in the BMP.

- *Section A2.5 in the BMP discusses the use of a short fire run methodology. DFES do not support the use of a short fire run methodology and have not authorised the use of the 'DFES short fire run calculator'. DFES have advised on multiple occasions that the DFES short fire run calculator cannot be used. Any reference to the DFES short fire run calculator should be removed from the BMP.*
- *Bushfire Prone Planning have previously been advised that NSW methodology is not accepted in WA.*

BPP response: It is my opinion that in addition to the physical evidence provided by practical bushfire experience and bushfire research, common sense would readily be able to accept that a fully developed bushfire would not be able to develop in small areas or thin strips of vegetation.

AS 3959:2018 BAL determination methodology only accounts for a fully developed bushfire (applying certain default calculation values). The 'fully developed fire' in AS3959 assumes

when ignited it can travel for the distance required to develop a 100m head fire width at which point it is considered to be a 'steady state' fire. AS 3959 does account for certain low threat vegetation scenarios that result in their exclusion from classification. These however do not account for all situations when bushfire behaviour would be expected to be significantly less severe than a fully developed bushfire in a given vegetation type. One situation is when the physical width of the vegetation to which a building is exposed, is less that 100m - in which case there is provision in the methodology for a reduced value to be applied. However, this still does not fully account less than fully developed bushfire scenarios. Primarily I am referring to the 'Short Fire Run' scenario where when certain site requirements can be met it can be justified that the length of fuel available for a fire run directly impacting a building, when ignited from a single point, is just insufficient to fully develop. Acceptance of this issue is evidenced in the NSW RFS SFR methodology (which BPP did not apply in this instance), the CSIRO BAL calculator accounting for short fire run lengths (with similar outcomes to the DFES calculator), the fact DFES created a calculator for that purpose (albeit they contend they have instructed it not to be used now - and not provided an alternative approach to address this matter) and the ability to consider this matter that exists in alternative sources of BAL calculators. If the situation of accounting for anything less than a fully developed bushfire any area of classified vegetation regardless of size is going to be ignored in WA, then this will have significant implications for the relevant scenarios.

- *AS 3959:2018 Appendix B (Method 2), B8, Step 7-Flame Width can be used to reduce the flame **width**, however the 10 metres proposed by the consultant is based on a short fire run and is not accepted. The width of the vegetation affecting the fire behaviour is greater than 10 metres.*

BPP response: Refer Page 69 Addendum 1 of the BMP. I am aware of reducing the flame width, however in this scenario it is not appropriate as it will over predict the head fire intensity. Applying a realistic short fire run scenario is appropriate.

Greg Delahunty
Manager Planning and Environment Services

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E: Gregory.Delahunty@murray.wa.gov.au
murray.wa.gov.au

Shire of Murray

PO Box 21, Pinjarra WA 6208.

ATTACHMENT 3

BPP response to peer review

Suite 11, 36 Johnson Street Guildford WA 6055
PO Box 388 Guildford WA 6935
T: 08 6477 1144 | E: admin@bushfireprone.com.au

Our Ref: 260023
Your Ref:

28 May 2026

Greg Delahunty
Manager Planning and Environment Services
Shire of Murray
1915 Pinjarra Road
Pinjarra WA 6208s

Dear Greg

RE: RESPONSE TO PEER REVIEW OF METHOD 2 BAL ASSESSMENT – LOT 977 NANCARROW WAY RAVENSWOOD

I have read the draft version of the peer review presented to yourself conducted by Erika Dawson of Integrated Consulting dated 26 May 2026 and forwarded to me by Clare McLean of Plan Town Planning & Design. along with your email to Clare McLean dated 27 May 2026.

You have identified two issues arising from that review that are to be addressed, and I present my response below.

1. For the matter regarding the six metre wide strip of existing vegetation adjoining the subject lot (associated with the vegetation within the drainage basin identified as Vegetation Area 3). I agree with your statement that this can be "dealt with through a condition of approval with the applicant modifying the vegetation to the satisfaction of the Shire and the Shire assuming ongoing maintenance."

   It is completely feasible that this strip of vegetation can be modified and maintained to present a low bushfire threat. How this would be achieved is stated in the submitted BMP. I recommend that I would also need to be satisfied that the relevant area of land can justifiably be excluded from classification in accordance with AS 3959:2018 at the completion of vegetation modification works and state this compliance.

2. For the matter of assessing the effective slope under the Vegetation Area 3 for use in the determining of the potential bushfire impact (the BAL rating in this case) I present the following to further support the determination presented in the submitted BMP.

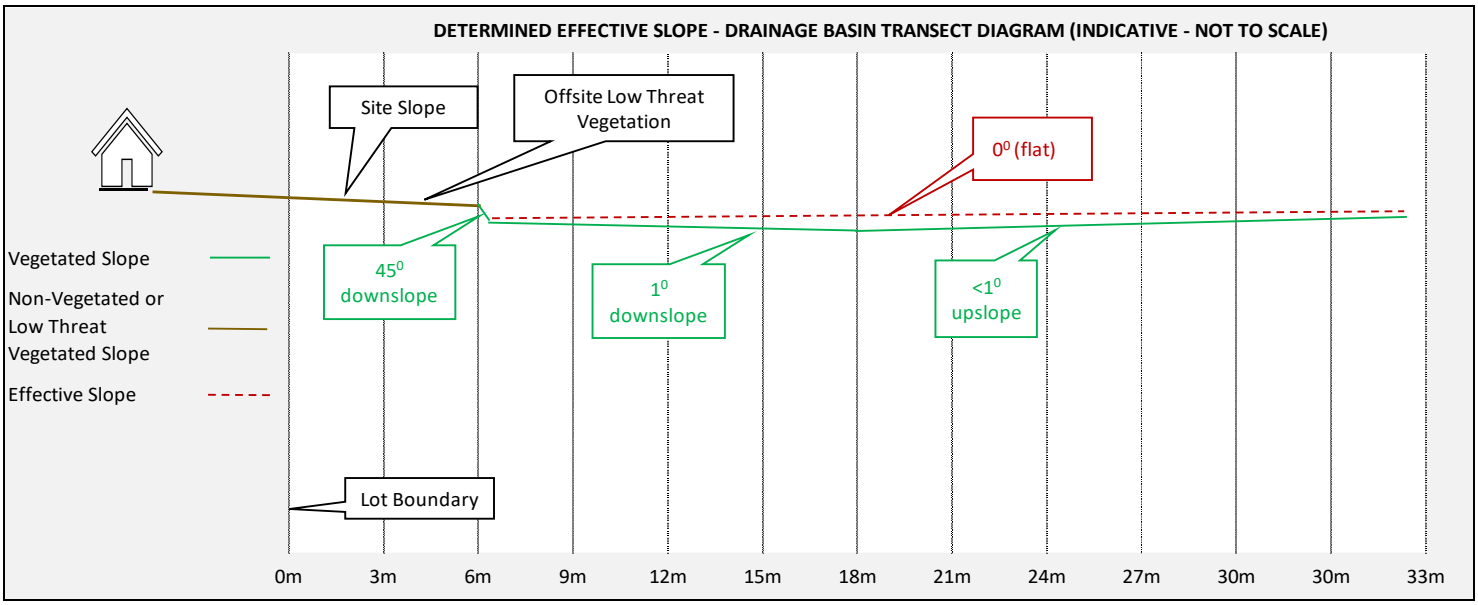
DETERMINATION OF EFFECTIVE SLOPE UNDER VEGETATION AREA 3

To supplement the previously provided information for the purpose of informing decision makers, I provide the following comments as additional justification for the assessed effective slope of zero degrees (flat) under the bushfire prone vegetation identified as Area 3 in the submitted bushfire management plan. Please also refer to the effective slope explanatory information that was provided in the submitted BMP in Appendix 1.3:

- Ground slope under bushfire prone vegetation has a significant influence on a fire's rate of spread and consequent intensity of fire behaviour which increases with increased rates of spread. Bushfire will travel faster up a slope (assessed as 'downslope' values in AS 3959) than down a slope (assessed as 'upslope' values in AS 3959).

In accordance with the directions and intent of the AS 3959 BAL determination methodology, the effective slope value is derived by a qualified assessor to ensure that it properly accounts for the ground slopes (under vegetation) and their role in the bushfire modelling calculations - to determine the likely worst case potential bushfire impact from the relevant area of vegetation.

- The diagram below presents a transect perpendicular to the closest lot boundary (north-eastern) through the vegetated drainage basin. The dimensions and slope angle are derived from site visit observations (refer to included site photos for context) and calculations rather than a detailed survey that derives precise measurements.
- It is my opinion that a detailed survey is not warranted in this situation for these key reasons:
    - To conduct a detailed survey would imply that the bushfire behaviour models of AS 3959 that utilise this information, are very accurate at determining the expected bushfire impact. The reality is the applied bushfire behaviour models have their limitations and can only indicate potential impacts rather than present a definitive and accurate impact. Consequently, a site survey is typically not an indicated requirement for the determination of effective slope – unless it cannot be reasonably determined by another means.
    - The 'effective slope' is not necessarily the same as 'a surveyed angle' or an 'average' slope although it can approximate these in certain situations. It typically varies from both of these. The key point is that the effective slope will most likely not be a surveyed value. It is an interpreted value applied using the expert knowledge of the qualified assessor. Consequently, surveying for detailed changes in slope angles and lengths is just not necessary and is unable to be applied to bushfire behaviour models with that degree of granularity anyway.
- When considering expected bushfire behaviour in the drainage basin the following are my key assessments regarding effective slope:
    - Vegetation Area 3 is small and cannot contain a fully developed bushfire. Consequently, a fire in this drainage basin will always be a lower intensity fire. This has been acknowledged in the assessment by applying the limited fire run length of 26 m which results in a reduced head fire width of 9.2 metres being applied to the derivation of potential radiant heat transfer. According to AS 3959:2018 bushfire modelling, a 100 m head fire width is required to represent a fully developed fire. Applying varying effective slope values (derived from a detailed actual slope survey), through the small, vegetated basin is not justified in properly determining potential fire behaviour within the basin.
    - There are only two 'significant' slopes within the basin. These are the illustrated one degree downslope and less than one degree upslope slopes. A bushfire spreading across these slopes towards proposed building works will have its behaviour, as influenced by the slope of the ground, appropriately modelled applying an effective slope of zero degrees i.e. flat. Refer to the below diagram and the explanatory information in the submitted BMP at Appendix 1.3.
    - The 45 degree downslope on the northeastern edge of the basin is very short. It is also at the edge of the vegetation adjacent to future building works. As the fire reaches this slope the entire active fire will not be solely burning on this slope (some of the flame depth is likely to be on the flatter land) and it will also be exhausting fuels on the remaining steeper slope section and be reducing in intensity quickly. It is my expert opinion based on extensive practical fire behaviour experience that this small jump up slope will have no meaningful impact on the fire behaviour in the basin or the level of radiant heat transferred to the proposed building works.
    - It is my opinion that the effective slope value of zero degrees (flat) applied to the vegetation within the drainage basin is the appropriate value to apply to bushfire modelling to determine its potential impact on proposed building works on the neighbouring lot.



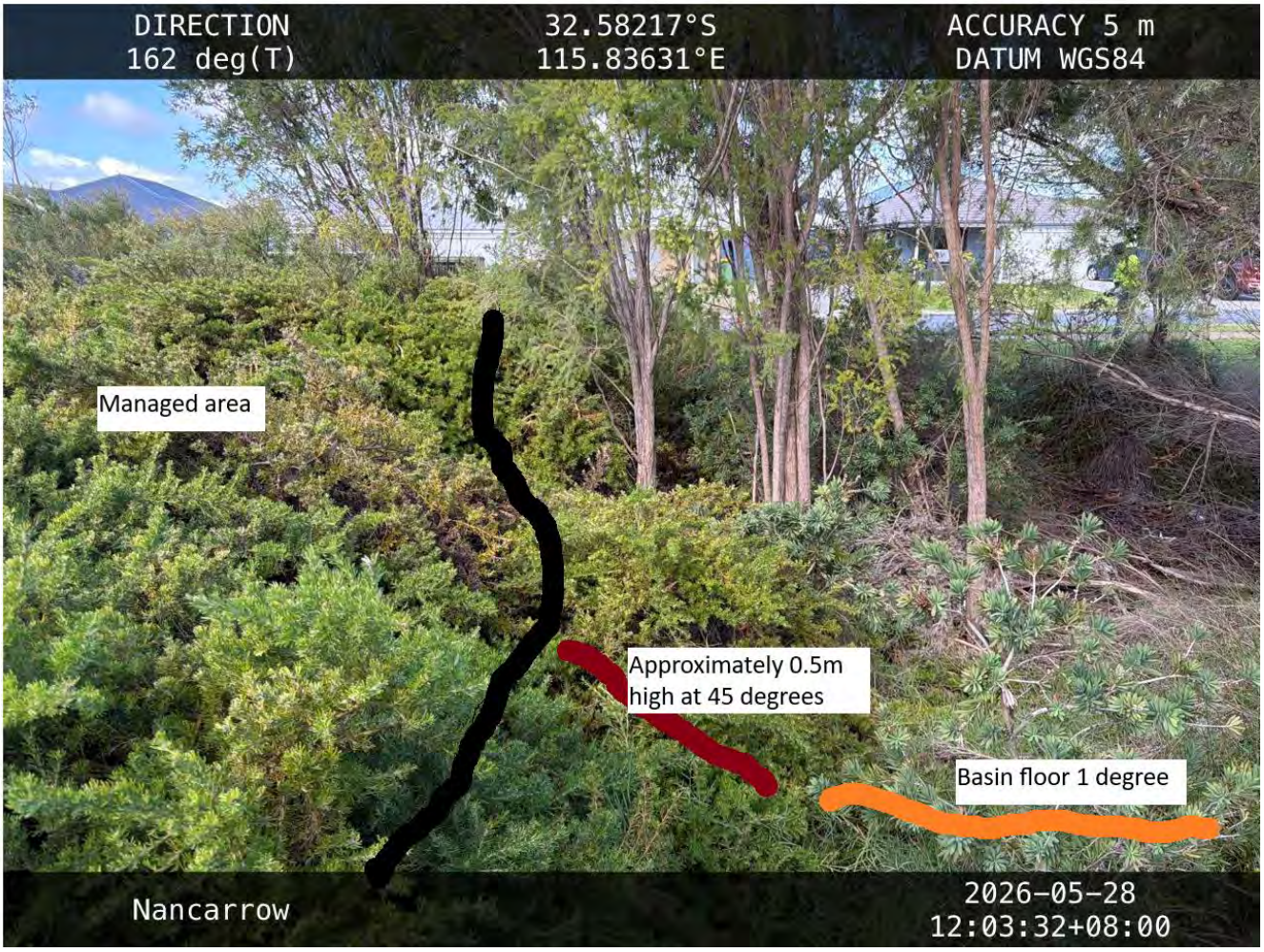


Photo detailing proposed managed area (black mark) between childcare site and basin, 0.5m 45 degree downslope from managed area to basin floor and basin floor.

If you wish to discuss these issues further, please do not hesitate to contact me.

Yours sincerely



Mike Scott (Director)

Proposal – P085/2026 - Childcare Centre
Summary of Submissions

No.	Submitter	Summary of Submission
1	D26/16438	I believe the proposed child care facility will add significant value to our community and its location is perfect. I quickly reviewed the traffic impact statement and noted that it primarily focuses on the immediate area with little focus on the already stressed intersection of Nancarrow way and pinjarra road. While this is and should be, well above the influence of the developer the bodies responsible for this intersection need to review the intersection again and implement some mitigating controls there to reduce the already unacceptable level of traffic accidents there.
2	D26/17004	I have no objection to the above proposed development.
3	DFES	I refer to your email dated 5 March 2026 regarding the submission of a Bushfire Management Plan (BMP) (Version 1.0) prepared by Bushfire Prone Planning and dated 16 February 2026, for the above proposed development. The BMP is accompanied by several documents: a Bushfire Emergency Plan dated 4 March 2026, an email from the Shire of Murray concerning management of an apron inside its reserve dated 21 January 2026, a submission letter for a Proposed Childcare Centre dated 2 May 2026 and Construction Intelligent Design plans dated 2 December 2025 submitted by the proponent, in relation to the proposal. This advice relates to the *State Planning Policy 3.7 Bushfire* (SPP 3.7) and supporting *Planning for Bushfire Guidelines* (Guidelines), as well as DFES' role and responsibilities as Hazard Management Agency for Fire in Western Australia. <u>General Comment</u> • DFES acknowledges that the site currently accommodates a vacant lot, and the proposed development includes a class 9b childcare centre which will cater for 72 children, staff, and 18 onsite car parking bays. • DFES has reviewed the BMP, however, cannot guarantee that the BMP is consistent with all other plans and information submitted as part of the proposal. The decision maker should be satisfied that all submitted documents have consistent details. • Specific requirements of SPP 3.7 and the Guidelines are to be further addressed in the BMP as outlined in the below assessment Tables 1 to 3. <u>Recommendation: Compliance with acceptable solutions approach not demonstrated – modifications required</u>

		DFES advises that the BMP has not demonstrated that the proposed development complies with the Element 2: Siting and Design requirements of SPP 3.7 and the Guidelines. DFES recommends the BMP be modified as per the Assessment advice provided in Tables 1-3 to ensure it is accurate and the bushfire risk management/mitigation measures are effective and can be implemented in perpetuity to manage/mitigate the bushfire risk to people, property and infrastructure to an acceptable level and appropriate to the land use and location. The required modifications are listed in the table(s) below. Should the modified BMP affect the design of the proposal, the proposal should be amended to reflect these modifications. Could you please forward notification of the application determination for DFES for our records. Required Modification Table
	DFES Second Comment	I refer to your email dated 29 April 2026 regarding the submission of a letter of response, prepared by Bushfire Prone Planning (dated 16 April 2026) in response DFES letter of advice (15 April 2026, for the above proposed development. DFES advice remains unchanged and further clarification is provided below. It is considered that the letter of response from Bushfire Prone Planning is argumentative and adds no value to the assessment of bushfire risk to the proposed development: • There is insufficient information to satisfy DFES that the vegetation in Area 3 is Class D Scrub classification. DFES advice remains unchanged. • Section A1.3 in the BMP does not align with AS3959: 2018 clause 2.2.5 which outlines the methodology used to determine the effective slope. AS3959:2018 does not use the parameters of 'significant slope' or 'sufficient slope length' for either a Method 1 or a Method 2 calculation. • Section A2.5 in the BMP discusses the use of a short fire run methodology. DFES do not support the use of a short fire run methodology and have not authorised the use of the 'DFES short fire run calculator'. DFES have advised on multiple occasions that the DFES short fire run calculator cannot be used. Any reference to the DFES short fire run calculator should be removed from the BMP. • Bushfire Prone Planning have previously been advised that NSW methodology is not accepted in WA. • AS 3959:2018 Appendix B (Method 2), B8, Step 7-Flame Width can be used to reduce the flame **width**, however the 10 metres proposed by the consultant is based on a short fire run and is not accepted. The width of the vegetation affecting the fire behaviour is greater than 10 metres.

Government of Western Australia
Department of Fire & Emergency Services

DFES
Department of Fire & Emergency Services

Our Ref: 2026/0784
Your Ref: P085/2026

Mr Ieuan Hook
Shire of Murray
Ieuan.hook@murray.wa.gov.au

Dear Mr Hook

LOT 977 NANCARROW WAY, RAVENSWOOD – PROPOSED CHILDCARE CENTRE - VULNERABLE LAND USE - DEVELOPMENT APPLICATION

I refer to your email dated 5 March 2026 regarding the submission of a Bushfire Management Plan (BMP) (Version 1.0) prepared by Bushfire Prone Planning and dated 16 February 2026, for the above proposed development. The BMP is accompanied by several documents: a Bushfire Emergency Plan dated 4 March 2026, an email from the Shire of Murray concerning management of an apron inside its reserve dated 21 January 2026, a submission letter for a Proposed Childcare Centre dated 2 May 2026 and Construction Intelligent Design plans dated 2 December 2025 submitted by the proponent, in relation to the proposal.

This advice relates to the *State Planning Policy 3.7 Bushfire* (SPP 3.7) and supporting *Planning for Bushfire Guidelines* (Guidelines), as well as DFES' role and responsibilities as Hazard Management Agency for Fire in Western Australia.

General Comment

- DFES acknowledges that the site currently accommodates a vacant lot, and the proposed development includes a class 9b childcare centre which will cater for 72 children, staff, and 18 onsite car parking bays.
- DFES has reviewed the BMP, however, cannot guarantee that the BMP is consistent with all other plans and information submitted as part of the proposal. The decision maker should be satisfied that all submitted documents have consistent details.
- Specific requirements of SPP 3.7 and the Guidelines are to be further addressed in the BMP as outlined in the below assessment Tables 1 to 3.

Recommendation: Compliance with acceptable solutions approach not demonstrated – modifications required

DFES advises that the BMP has not demonstrated that the proposed development complies with the Element 2: Siting and Design requirements of SPP 3.7 and the Guidelines.

DFES recommends the BMP be modified as per the Assessment advice provided in Tables 1-3 to ensure it is accurate and the bushfire risk management/mitigation measures are effective and can be implemented in perpetuity to manage/mitigate the bushfire risk to people, property and infrastructure to an acceptable level and appropriate to the land use and location. The required modifications are listed in the table(s) below. Should the modified BMP affect the design of the proposal, the proposal should be amended to reflect these modifications.

Could you please forward notification of the application determination to DFES for our records.

If you require any clarification or further information regarding the below assessment, please do not hesitate to contact Land Use Planning Officer - Linda Savage on telephone number 9395 9706.

Yours sincerely



DESMOND ABEL
DIRECTOR LAND USE PLANNING

15 April 2026

Table 1: Assessment – Policy Measure 7.1 ii. c. Compliant Preparation of a Bushfire Attack Level (BAL) Contour Map

Vegetation Classification or Exclusions	BMP Modification Required
Classified Area 3 – not demonstrated Vegetation Area 3, located to the north, west, and south of the subject site, cannot be substantiated as Class D Scrub with the limited information and photographic evidence provided. Furthermore, under Vegetation Area 3, page 54 in the BMP, the claim of tree height up to 30m exceeds the 6 metre height for Scrub. The potential for revegetation has not been considered. The BMP should detail specifically how the Class D Scrub classification was derived for areas north, west and south of the subject land as opposed to Class A Forest. Additionally, the classification of the vegetation on the adjoining site (reserve) to the subject land has been classified as D Scrub; however, there is no photographic evidence to support this classification. If unsubstantiated, the vegetation classification should be revised to consider the vegetation at maturity as per AS 3959, or the resultant BAL ratings may be inaccurate.	**BAL Rating cannot be validated.** Further evidence to support the vegetation classification of Area 3 is required.
Exclusion Area 1 – not demonstrated Evidence to support the exclusion of the area (within Area 1) adjacent to the subject site which is proposed to be managed by the Shire of Murray (Shire), is required. It is acknowledged there is an email from the Shire which commits to the management of 6 metres of vegetation on the western boundary of the lot, however this is not considered a legal or binding agreement and would likely be subject to ongoing resource and funding conditions. If unsubstantiated, the vegetation should be classified as per AS 3959, or the resultant BAL ratings may be inaccurate.	**BAL Rating cannot be validated.** Decision maker to be satisfied that this area of vegetation will be managed to low threat in perpetuity.
SPP 3.7 Appendix A - Bushfire Assessment Methodologies	**BMP Modification Required**
Method 2 The Method 2 calculation provided is not supported for the following reasons: 1. The vegetation classification for Area 3 should be Class A Forest, based on the potential for revegetation. 2. Photographs are not provided for the vegetation closest to the building, and this vegetation is likely to have the greatest influence on the BAL.	**BAL Rating cannot be validated.** Method 2 outputs cannot be validated.

3. The 0-degree site slope is not supported as the vegetation is in a stormwater management depression and the building site is elevated with a retaining wall, making it upslope from the vegetation. 4. The head fire width of 10 metres is not supported; the dimensions and orientation of the classifiable vegetation to the building are much longer than 10 metres. 5. The proposed building site will have the same determined BAL under a valid Method 1 or valid Method 2; there is no need for Method 2, as, due to the lack of hazard separation, a valid outcome will be greater than BAL-29. 6. The proposed short fire run is not supported; a short fire run must be verified through a performance application under the National Construction Code, and it is not a Method 2. 7. The building is within the flame length of the vegetation, meaning a performance approach is unlikely to reduce the BAL.	

Table 2: Policy Measure 7.1 ii. e. Compliance with the Bushfire Protection Criteria 8: Development – Vulnerable Class 9 Buildings

Element	Assessment	Action
Siting and Design – Asset Protection Zone (APZ)	**A2.2 – not demonstrated** The BAL ratings cannot be validated for the reason(s) outlined in Table 1. The proposed building may be located in an area exceeding BAL-29 however there appears to be further opportunities to redesign the development footprint to achieve a lower BAL rating. An appropriately sized APZ cannot be achieved within the lot boundary.	**BAL Rating cannot be validated.** Modification to the BMP is required to address the Assessment advice in Table 1.
Siting and Design – Clearing of native vegetation	**A2.3 – not demonstrated** The BAL ratings rely on substantial clearing of native vegetation. It has not been demonstrated that the proposal is located in an area which minimises the clearing of native vegetation.	**BAL Rating cannot be validated.** Modification to the BMP is required to address the Assessment advice in Table 1.

Table 3: Policy Measure 7.1 iv. and Section 9.4.2 of the Guidelines: DFES Role as Hazard Management Agency (HMA)

DFES wishes to provide the below additional advice in its role and responsibilities of HMA for Fire in Western Australia.

AS 3959 construction standards, including clause 3.2.3 adjacent structures		**Action**
Building Construction Standards	It is acknowledged that the transition period for Class 9b primary and secondary schools and class 9b early childhood centres (and any Class 10a building or desk immediately adjacent or connected to buildings of these types) to comply with the amended National Construction Code Specification 43 has been extended until 30 April 2028. However, DFES is of the opinion that all Class 9 buildings should be afforded significant protection from the impacts of a bushfire due to being occupied by people who may need assistance, or be unable, to evacuate the building in the event of a bushfire. The changes include but are not limited to; minimum separation between buildings, and separation from allotment boundaries, carparking areas and hazards. It is suggested the decision maker consider applying the higher construction and design standards to the proposed development. Further information regarding the changes can be found here: Specification 43 Bushfire protection for certain Class 9 buildings | NCC	**Comment only.**
Bushfire Emergency Plan (BEP)		**Action**
Bushfire Emergency Plan (BEP)	The referral has included a *'Bushfire Emergency Plan'* for the purposes of addressing the policy requirements. Consideration should be given to the Bushfire Emergency Plan (BEP) Manual (as published by the Western Australian Planning Commission). This contains details of information that should be included in a BEP and will ensure the appropriate content is detailed when finalising the BEP to the satisfaction of the Shire of Murray.	**Comment only.**
DFES Other Technical Advice		**Action**
DFES Bushfire Technical Services	The Method 2 calculation provided is not supported for the following reasons: 8. The vegetation classification should be Class A Forest, based on the potential for revegetation. 9. Photographs are not provided for the vegetation closest to the building, and this vegetation is likely to have the greatest influence on the BAL.	**Modification to the BMP is required to address the Assessment advice.**

	10. The 0-degree site slope is not supported as the vegetation is in a stormwater management depression and the building site is elevated with a retaining wall, making it upslope from the vegetation. 11. The head fire width of 10 metres is not supported; the dimensions and orientation of the classifiable vegetation to the building are much longer than 10 metres. 12. The proposed building site will have the same determined BAL under a valid Method 1 or valid Method 2; there is no need for Method 2, as, due to the lack of hazard separation, a valid outcome will be greater than BAL-29. 13. The proposed short fire run is not supported; a short fire run must be verified through a performance application under the National Construction Code, and it is not a Method 2. 14. The building is within the flame length of the vegetation, meaning a performance approach is unlikely to reduce the BAL.	
DFES Land Use Planning	It is the responsibility of the proponent to ensure the proposal complies with relevant planning and building requirements. This advice does not exempt the applicant/proponent from obtaining approvals that apply to the proposal including planning, building, environmental health or any other approvals required by a relevant authority under written laws.	**Comment only.**

PART C – OTHER BUSINESS

1. State Administrative Tribunal Applications and Supreme Court Appeals

2. Meeting Closure