Development Application Report

Proposed Child Care Centre

Lot 631 (108) Lawrence Way, Byford

PLANNING SOLUTIONS
URBAN & REGIONAL PLANNING
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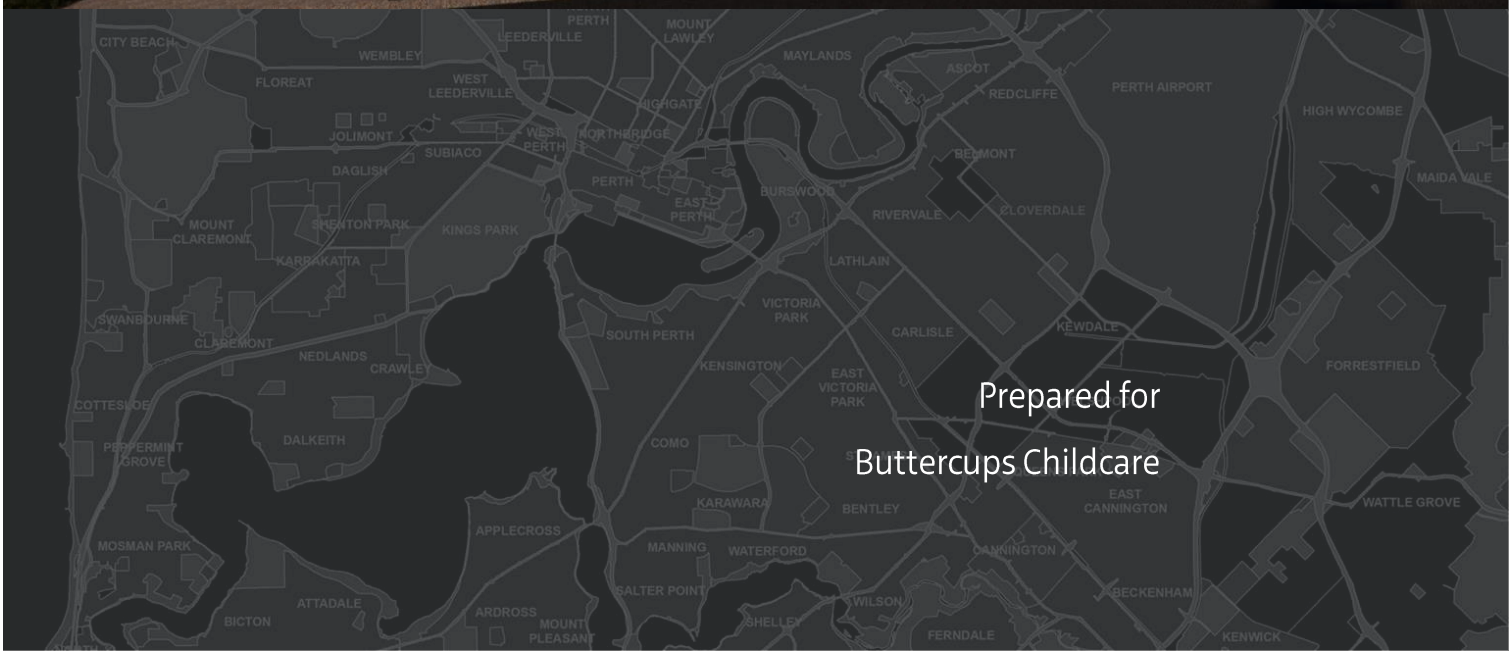

Prepared for

Buttercups Childcare

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Project Details

Job number	8009	
Client	Buttercups Childcare	
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Document Control

Revision number	File name	Document date	Prepared by	Checked by
Rev 0	240321 8009 DA Report	21 March 2024	OBe	JW

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1 PRELIMINARY

1.1 Introduction

Planning Solutions acts on behalf of Buttercups Childcare, the operator of the proposed child care centre development at Lot 631 (108) Lawrence Way, Byford (**subject site**).

Planning Solutions has prepared the following report in support of an application for development approval. This report will discuss various matters pertinent to the proposal, including:

- Site details.
- Proposed development.
- Statutory planning framework.

The proposal involves the use and development of a child care centre on the subject site, which will accommodate a maximum of 96 children.

The proposed development seeks to establish an important community facility on the subject site, providing essential urban support services to the current and future residents and workers of Byford and its surrounding suburbs. The proposed development will result in a substantial community benefit through the provision of essential child care services and the generation of local employment opportunities.

The child care centre has been specifically designed to respond to the transitioning character of the area with an attractive, site responsive design and layout.

The proposed development is designed to a high architectural standard and has benefitted from the expert input of traffic, acoustic and landscaping consultants. The development includes environmentally sustainable design features and native landscaping, and encourages alternative modes of transport.

We respectfully request the Metro Outer Development Assessment Panel grant approval to the proposed development.

2 SITE DETAILS

2.1 Land description

Refer to **Table 1** below for the lot details and a description of the subject site.

Table 1 - Lot details

Lot	Deposited Plan	Volume	Folio	Area (m²)
631	423330	4030	692	2,304

Refer **Appendix 1** for a copy of the Certificate of Title and Deposited Plan.

2.2 Location

2.2.1 Regional context

The subject site is within the municipality of the Shire of Serpentine Jarrahdale (**Shire**), approximately 32.5km south east of the Perth city centre and 1.8km south west of the Byford Activity Centre. The subject site adjoins Orton Road at its southern boundary, which provides a direct connection to the Kwinana Freeway to the west and South Western Highway to the west (via Warrington Road and Abernathy Road). The site also adjoins Lawrence Way to the east and Maive Street to the north which provide accessibility to the surrounding residential areas.

2.2.2 Local context, land use and topography

The subject site is within an area of Byford planned for future development and expansion. The subject site comprises of one residential lot which is currently vacant of any development and has a combined area of 2,304m^2 (refer **Figure 1** below).

The subject site is located within a residential estate named Beenyup Grove, providing new residential lots, and public open space. The residential estate is approximately 75% complete, with the residential lots in the southern portion of the estate yet to be developed. The subject site is located approximately 200m south from the Beenyup Primary School which is also located on Lawrence Way.

Figure 1: Aerial photograph

3 PROPOSED DEVELOPMENT

3.1 Development Summary

The proposal seeks to develop a single-storey, 96 place child care centre with associated car parking, landscaping and access on the subject site. The child care centre is well positioned in a predominantly single storey residential locality and is within close proximity to a primary school. The scale and form of the proposed child care centre respects the context and character of the locality. The proposed building seeks to address the street frontages through responsible design, reinforcing the residential aesthetic, while allowing for a subtle variation to outline the child care centre and its relative branding.

The proposed centre will provide early learning / child care services for up to 96 children of the following age demographics:

- 20 places for children aged 0-2 years.
- 36 places for children aged 2-3 years.
- 40 places for children aged 4-5 years.

The centre is proposed to operate from 6:30am to 6:30pm, Monday to Friday, and accommodate 16 staff.

The proposal is supported by the following technical reports demonstrating its suitability:

- Transport Impact Statement (**TIS**) prepared by Urbii, demonstrating there will be minimal impacts on the surrounding road network arising from the proposal, and that the proposed access arrangements are satisfactory from a traffic engineering perspective (refer to **Appendix 3**).
- Environmental Noise Assessment prepared by Reverberate, demonstrating the proposal will comply with the *Environmental Protection (Noise) Regulations 1997* (refer to **Appendix 4**).
- A Bushfire Management Plan and Bushfire Emergency Evacuation Plan prepared by Ecological, demonstrating the proposal will comply with State Planning Policy 3.7 – Planning in Bushfire Prone Areas (refer **Appendix 5**).
- A Landscaping plan prepared by Urban Retreat Garden Design, depicting the proposed on site and verge landscaping (refer **Appendix 6**).

Specifics of the proposed development and its built form are discussed below.

3.2 Built Form

The proposed child care centre is intended to create a recognisable community focal point, providing an essential service which is accessible to the surrounding residents.

The facility has been designed in a manner consistent with the prevailing residential character of the locality. The domestic building form with a pitched roof, selected soft tones, materials and textures ensure the attractive built form of the facility is sympathetic to its context.

Specifically, the proposed development comprises:

- A single storey child care centre building with a maximum height of 4.79m, with the following setbacks:
  - Minimum 1.5m setback from Orton Road (southern boundary).
  - Minimum 6m setback to Lawrence Way (eastern boundary).
  - Minimum 15m setback to Maive Street (northern boundary).

  - Minimum 13.7m setback from the residential property (Lot 441 Orton Road & Lot 466 Maive Street) on the southern boundary.

- Floor-to-ceiling windows along the northern and eastern building elevations to maximise access to natural sunlight within internal activity rooms.
- Openable windows and doors on building elevations to allow natural cross-ventilation.
- The building façades are comprised of high quality materials including axon and matrix panel cladding, powdercoat aluminium, Colorbond, textured paint finishes and glazing. The materials and finishes are consistent with a residential built form typology. The built form is intended to be an attractive addition to the streetscape.
- An outdoor play area in the northern and eastern portions of the site, with a total area of 686m^2.
- An internal floor layout with the following components:
  - Piazza, reception desk, office, meeting and staff rooms.
  - Kitchen, pantry store and laundry.
  - Six group activity rooms and associated children's toilets, prep rooms and sleep rooms.
- Boundary fence along the perimeter of the subject site and outdoor play spaces, comprising various materials, design features and heights. Fencing heights and design are reflective of the acoustic recommendations and amenity.
- Substantial landscaping provided along street frontages and throughout the site, including native shade trees, groundcover and verge planting.
- One 6.2m full movement crossover to Maive Street and one 3.5m egress crossover to Cap Road, which connects directly to Orton Road. Ingress and egress has been configured to optimise the functionality and accessibility of the site for both visitors and staff.
- A 20 bay car park situated in the western portion of the subject site, including one ACROD bay.
- Pedestrian access via an entrance foyer at the western elevation, accessible from the car park and the footpath from Orton Road.
- Fully enclosed bin store located at the southern portion of the car park. Waste bins will be wheeled out to the car park for on site waste collection (during non peak periods of operation), as required and based on the needs of the child care centre.

Refer to **Appendix 2** for the development plans depicting the proposal.

Refer **Figures 2 – 4** below for perspectives of the proposed development.

Figure 2: North west view of child care centre viewed from the car park.

Figure 3: Corner of Maive Street and Lawrence Way Perspective.

Figure 4: Child care centre entrance as viewed from the car park.

3.3 Transport

The proposed development and access arrangements are supported by a Transport Impact Statement (**TIS**) prepared by Urbii. The TIS carries out an assessment in accordance with WAPC guidelines and demonstrates that the trip generation resulting from the proposed facility will have an insignificant impact on the surrounding road network.

The resultant anticipated traffic generation from the proposed development is 78 AM peak hour trips, and 78 PM peak hour trips. The net traffic increase of the child care centre will not increase traffic on the surrounding road network by more than 100 vehicles per hour. In accordance with the WAPC's Transport Impact Assessment Guidelines for Development (2016), a Transport Impact Assessment is therefore not required as the impact on the surrounding road network is insignificant.

The TIS provides the following conclusions:

- The traffic analysis shows that the traffic generation of the proposed development is relatively low, and as such, would have an insignificant impact on the surrounding road network.
- The site features good connectivity via the existing road and path network in the area.
- The provision of 20 on-site car parking bays are deemed sufficient to cater for the needs of the child care centre.
- The car park provides sufficient space for service vehicles to access and egress the subject site at off peak operating times or when closed.

Refer to **Appendix 3** for the Transport Impact Statement prepared by Urbii.

3.4 Acoustic

The development site is in proximity to residential properties and adjoins residential properties at its western and boundary. Accordingly, an Environmental Noise Assessment has been conducted by Reverberate.

The assessment considers the noise impacts associated with the proposed child care centre, and demonstrates the proposal will comply with the *Environmental Protection (Noise) Regulations 1997* during operating hours, subject to the following key mitigation measures:

- The outdoor play area is not to be used until after 7:00am (ie. during the day period only).
- Noise control barriers are recommendede2 with the minimum heights shown in Appendix C of the Environmental Noise Assessment.
- Restriction of selected car parking bays, with no parking in them until after 7am. This can be appropriately managed by the child care centre operator.
- The air conditioning condensing units to be installed with "Low Noise" night period modes.

Refer to **Appendix 4** for a copy of the Environmental Acoustic Assessment Report prepared by Reverberate.

3.5 Bushfire

The subject site is located within a designated bushfire prone area in accordance with the Department of Fire and Emergency Services (**DFES**) Map of Bushfire Prone Areas.

Accordingly, a Bushfire Attack Level Assessment (**BAL**) Report has been prepared by Ecological Australia to demonstrate appropriate bushfire risk management for the proposed development. The subject site has been identified within a range of BAL12.

A Bushfire Management Plan (**BMP**) and Draft Bushfire Emergency Evacuation Plan (**BEEP**) has therefore been prepared to support the proposed development. This reporting demonstrates the proposed use and location of built form is satisfaction to address the necessary bushfire requirements.

Refer Error! Reference source not found., Bushfire Management Plan and Bushfire Emergency Evacuation Plan.

3.6 Landscaping

A Landscaping Plan has been prepared by Urban Retreat Garden Design. Proposed are native species which are resilient and waterwise, consistent with typical types of planting found in the Byford area. Landscaped areas are provided in the Maive Street, Lawrence Way and Orton Road verges to visually soften the development and present attractively to the streetscape. Landscaping is provided within the car parking area, to screen parked vehicles and the bin store. Specifically, the proposed landscaping comprises:

- 64m^2 of soft landscaping elements on site including:
    - 8 x native trees
- 152m^2 of soft landscaping within verge areas including:
    - 7 x native trees

The Landscaping Plan excludes the 686m^2 outdoor play area. The outdoor play area design and landscaping will be finalised following tenant negotiations and preparation of more detailed designs.

Refer to **Appendix 6** for the Landscaping Plan prepared by Urban Retreat Garden Design.

3.1 Waste management

The development proposes an enclosed bin store at the southern aspect of the car park area. Waste collection will occur through a private contractor chosen by the operator.

Waste collection would occur when the facility is closed or outside of peak operating hours, allowing optimal use of the car park by a service vehicle and ensuring waste collection does not interfere with the operation of the centre.

4 STATUTORY PLANNING FRAMEWORK

4.1 Metropolitan Region Scheme

Under the provisions of the Metropolitan Region Scheme (**MRS**), the subject site is zoned Urban. The proposed development is consistent with the intent of the Urban zone and may be approved accordingly.

4.2 Shire of Serpentine Jarrahdale Local Planning Scheme No. 3

4.2.1 Zoning

The subject site is zoned 'Urban Development' under the Shire of Serpentine Jarrahdale's Local Planning Scheme No. 3 (**LPS3**) (refer **Figure 5** below).

The objective of the Urban Development zone is:

> *The purpose of the Urban Development zone is to provide for the orderly planning of large areas of land in a locally integrated manner and within a regional context, whilst retaining flexibility to review planning with changing circumstances.*

Relatedly, the Doley Road Precinct Structure Plan (**PSP**) has been prepared for the subject site to guide the future development of the area. The PSP is addressed separately in **section 4.2.2** of this report.

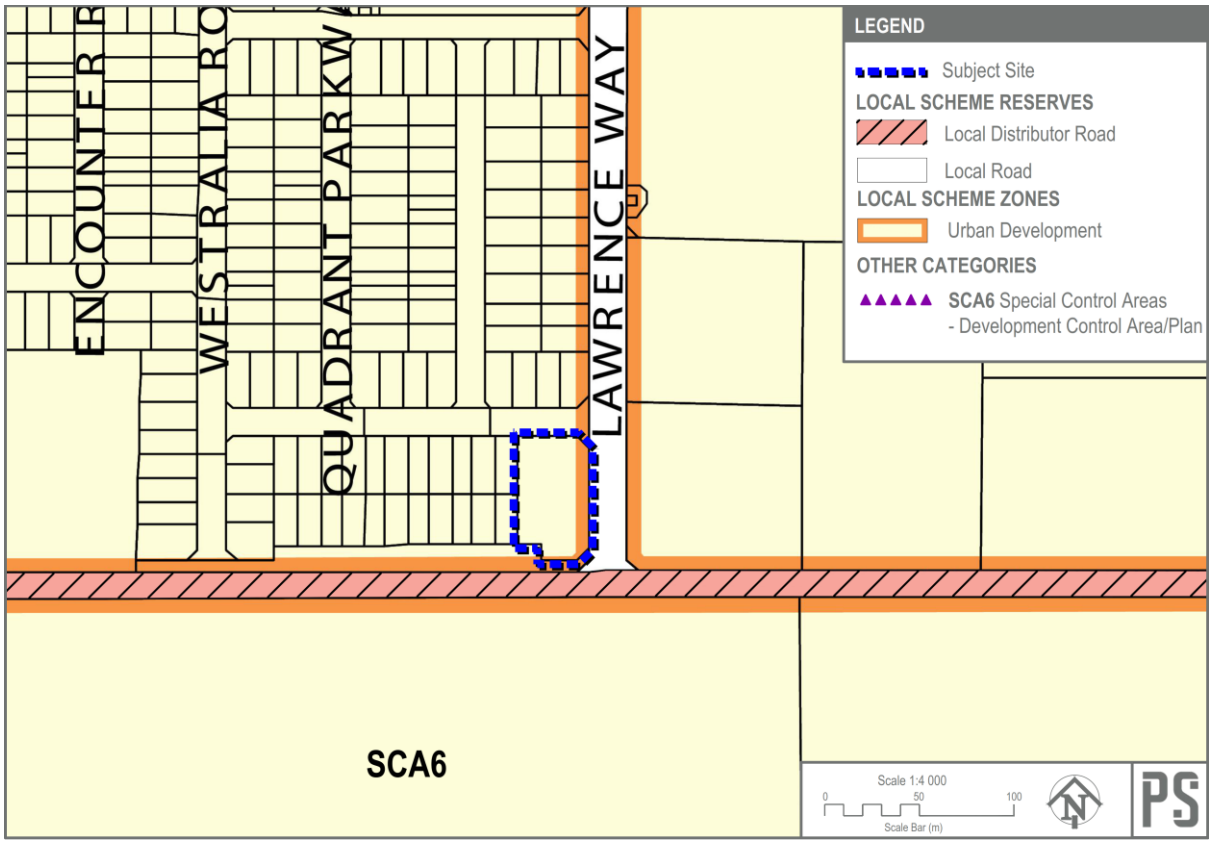

Figure 5: Zoning Map

4.2.2 Doley Road Precinct Local Structure Plan

The Doley Road Precinct Local Structure Plan (**PSP**) was prepared to inform the future subdivision and development of the western part of Byford's townsite within the Shire.

The subject site is designated 'Residential – R40 – R60' under the PSP.

4.2.3 Land use permissibility

The proposed development seeks approval for a child care centre, best classified as a 'Child Care Premises', under LPS3, defined as:

> ***Child Care Premises:*** *means premises where –*
>
> *(a) an education and care service as defined in the Education and Care Services National Law (Western Australia) Section 5(1), other than a family day care service as defined in that section, is provided; or*
>
> *(b) a child care service as defined in the Child Care Services Act 2007 section 4 is provided.*

A Child Care Premises is an 'A' use in the Urban Development and Residential zone and therefore capable of approval the discretion of the local government following advertising.

The proposed use is entirely appropriate and suitable for establishment on the subject site for the following reasons:

1. The proposed centre will provide an essential community service to the surrounding locality, catering for the care of up to 96 children and providing opportunities for local employment.
2. The proposed centre provides a site-responsive design, utilising the entire 2,304m^2 of development site area and incorporating built form to integrate within the residential character of the area.
3. The proposed development is located on Lawrence Way and will have synergies with Beenyup Primary School, 400m north.
4. The proposal is supported by a Transport Impact Statement which demonstrates it is satisfactory from a traffic and access point of view.
5. An acoustic assessment has been undertaken, demonstrating the proposal will comply with the *Environmental Protection (Noise) Regulations 1997.*

For the reasons outlined above, the proposed childcare premises is entirely compatible with the Urban Development and Residential zone and warrants approval accordingly.

4.2.4 Development standards and requirements

Schedule 4 - Additional Site and Development Requirements sets out the general developments requirements which apply to land use and development within the Scheme area. Refer to **Table 2** below for an assessment against the relevant provisions of Schedule 4.

Table 2 - Assessment against the relevant development requirements of LPS3

Requirement	Provided	Compliance
4.3 – Car Parking Requirements		
All parking areas shall be designed and constructed in accordance with relevant Australian Standards.	The proposed vehicle parking is compliant with the Australian Standards.	✓
All external parking areas shall include shade trees at the rate of 1 tree per 4 parking	20 car parking bays are provided. * 8 trees are provided within the car parking area.	✓

bays or 1 tree every 12 metres, whichever is the lesser.		
4.4 – Bicycle Parking and Facilities		
Where end of trip bicycle facilities are required under this Scheme, the following shall be provided at a minimum: *(a) one (1) shower for the first five (5) bicycle spaces or part thereof, plus an additional shower for each ten (10) bicycle parking spaces thereafter; and* *(b) one (1) change room or direct access to a communal change room per shower; and* *(c) one (1) secure equipment locker per bicycle parking space.*	3 bicycle racks are provided.	✓

Having regard to **Table 2** above, the proposal largely complies with the development requirements of LPS3 and warrants approval accordingly.

4.2.5 Parking

Table 3 below provides an assessment of the proposed car parking against the requirements of LPS3.

Table 3 - Assessment against car parking requirement of LPS3

Land use	Parking standard	Required car bays	Provided
Child Care Premises	*1 per 10 children accommodated under maximum occupancy and 1 bay per employee* with a minimum of 3 spaces.* **1 bay per employee means 1 bay for each of the maximum number of employees on the premises at any given time.*	1 bay for every 10 children = 9.6 bays. 1 bay per employee = 16 bays.	20 car bays (including ACROD bay)
Total		**Total bays required:** 26	**Total bays provided:** 20

Justification

As demonstrated in the TIS, the car parking layout and supply for the proposed childcare is considered appropriate. Detailed analysis has been undertaken to determine the actual need for car parking on the site. As detailed within the TIS, the average length of stay for drop-offs to be 6.8 minutes. The Poisson Distribution modelling shows that in any 7-minute period during the peak hour, the number of pick-ups/drop-offs within the car park will be 8 vehicles or less. Outside of peak hours the demand for visitor parking will be much lower thus the proposed 20 car parking bays will be sufficient.

The Byford Rail Extension and Byford Rail Station once complete will result in additional bus servicing within the locality to connect to the train station. In the medium to long term, buss accessibility for the proposed development is expected to improve. Additionally, the subject site is 200m south of Beenyup Primary School.

Refer to **Appendix 3** for a copy of the Transport Impact Statement prepared by Urbii.

Further, the WAPC Draft Position Statement: Child Care premises states *'Generally, the minimum car parking requirement for a child care premises, including staff and visitor parking, will be one space per five children.'* When considering this car parking ratio, the proposed development would only generate the need for 19 car bays.

Ultimately, the adequacy of the proposed car parking is demonstrated and the minor shortfall justifiable warranting approval.

4.2.6 Matters to be considered

Clause 67(2) of the Deemed Provisions sets out the matters for which due regard is to be given when considering a development application. Refer **Table 4** - Matters to be considered below for an assessment of the relevant matters.

Table 4 - Matters to be considered

Matter to be considered	Provided
(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;	The aims and provisions of LPS3 are addressed in this report.
(b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;	There are no known scheme amendments to LPS3 that would affect the merits of this proposal.
(c) any approved State planning policy	The relevant State Planning Policies are addressed in **section 5** of this report.
(g) any local planning policy for the Scheme area;	Relevant local planning policies are considered in **section 4.4** of this report.
(m) the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation, and appearance of the development;	Strong emphasis has been placed on the design of the building, ensuring the built form responds to the prevailing residential character of the locality, while making a positive built form contribution to the streetscape. The proposed building incorporates domestic styled materials and design features including a pitched roof, soft tones, textures and materials to maintain a high level of similarity with the established residential character of the area. The proposed building is single storey, consistent with adjoining residential properties. The proposed parking area comprises landscaping with shade trees to minimise/soften any perceived visual impacts. Increased landscaping is also provided north of the car park (within the verge) to further mitigate any visual impacts. The end result is a child care facility which presents well to the surrounding locality and achieves a good design outcome. Overall, the scale, height, orientation and appearance of the development is consistent with the character of the locality.
(n) the amenity of the locality including the following – *(i) environmental impacts of the development;* *(ii) the character of the locality;* *(iii) social impacts of the development;*	As detailed above, the proposed development responds to the character of the area through a range of design features. It has been demonstrated in the Environmental Noise Assessment the proposal will not affect the amenity of the adjacent residential properties. In this regard, noise generated by the proposed development will comply at all times with the *Environmental Protection (Noise) Regulations 1997*.

Matter to be considered	Provided
	There will be no detrimental social impact resulting from the proposed development. Conversely, the proposal will result in positive social impacts to the locality, through the creation of 16 jobs and provide essential early learning services for families, further enhancing opportunities for employment.
(p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;	The proposed development incorporates the following landscaping: The provision of native groundcover species throughout the development and adjacent verges. 8 trees provided on site and 7 more within the verge. The proposed landscaping arrangements are considered to be more than adequate for the purpose of the proposal.
(s) the adequacy of – *(i) the proposed means of access to and egress from the site; and* *(ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;*	A TIS has been prepared to address traffic/access considerations, confirming the proposed development is entirely suitable in this regard. Refer to **Appendix 3** for a copy of the Transport Impact Statement prepared by Urbii.
(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;	
(u) the availability and adequacy for the development of the following – *(i) public transport services;* *(ii) public utility services;* *(iii) storage, management and collection of waste;* *(iv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities);* *(v) access by older people and people with disability;*	i. Availability of transport options near the subject site is addressed in the supporting TIS (refer **Appendix 3**). ii. The subject site has access to all the required utility services prior to commencement of development (ie. following subdivision conditions clearance). iii. The details of the storage and collection of waste are provided within this report. iv. The development is accessible to pedestrians and cyclists through provision of a pedestrian accessway from Lawrence Way and Cap Street to the main entry. v. One universally accessible car parking space has been provided for the proposed development.
(v) the potential loss of any community service or benefit resulting from the development other than potential loss that may result from economic competition between new and existing businesses;	The proposed child care centre will provide full-time employment and provide essential early learning services for up to 96 children, meeting demand for such urban support services in the area. The facility will also enhance employment opportunities for residents in the wider locality through the provision of such services.
(w) the history of the site where the development is to be located;	The history of the site for residential purposes has been considered in the design of the proposed child care centre.
(x) the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;	In this respect, there is a clear and demonstrable positive social outcome resulting from this development. The application is supported by traffic and acoustic reporting, demonstrating the proposal will have no adverse impact on the amenity of the surrounding area.
(y) any submissions received on the application;	Any submissions will be considered during public advertising of the application.

The proposal meets the relevant matters to be considered, warranting approval.

4.3 Beenyup Grove Local Development Plan

The Beenyup Grove Local Development Plan (**LDP**) was prepared to inform the future subdivision and development of the residential portion of Beenyup Grove within the suburb of Byford.

The LDP provides provisions around the street scape, setbacks and open space. An assessment against the relevant provisions is detailed below in **Table 5**.

4.3.1 Development Requirements

The LDP provides general provisions for the land within the LDP area. **Table 5** provides an assessment against the general development standards and key development provisions as per the 'Residential – R60' designation prescribed by the LDP.

Table 5 - Assessment against relevant development requirements of LDP

Requirement	Provided	Compliance
Streetscape Requirements		
Primary Street Setback – 2m *Secondary Street Setback – 1m*	6m to Primary Street (Lawrence Way). 15m to Secondary Steet (Maive Street). 1.5m to Secondary Street (Orton Road).	✓
Boundary Setback Requirements		
- Buildings built to both side boundaries are permitted - Walls not higher than 3.5m, with an average height of 3.0m or less.	Fences above 3m tall are not proposed.	✓
Open Space Provisions		
Minimum open space – 30%	The proposal provides 60% open space.	✓
Landscaping		
The front setback area, excluding the area of any driveway, verandah or porch, shall consist of at least 40% soft landscaping.	The development proposes over 40% soft landscaping at front setback area.	✓

As shown in **Table 5** above, the proposed development is generally compliant with all the relevant development requirements of the LDP. The proposal warrants approval accordingly.

4.4 Local Planning Policies

An assessment of the proposed child care centre against the relevant Local Planning Policies is provided below.

4.4.1 Local Planning Policy 1.6 – Public Art

Local Planning Policy 1.6 – Public Art (**LPP1.6**) prescribes the need for public art contribution that will be required in larger scale developments to improve and enhance the wellbeing of people in the environments where they live, work and play by. The proposed development meets the criteria of LPP1.6 as it has a proposed construction cost between $1,000,000 - $50,000,000.

The contribution required states that:

> *Public art with a minimum cost of 1% of construction cost; or 1% of construction cost contributed to the public art fund.*

A public art contribution can be imposed as a suitably worded condition of approval.

4.4.2 Local Planning Policy 2.3 – Development Standards for Development Applications

Local Planning Policy 2.3 – Development Standards for Development Applications (**LPP2.3**) establishes a minimum standard for development to maintain and enhance the amenity and natural environment, and ensures high quality landscaping will be established, identified and preserved where possible. Table 6 below provides an assessment against the relevant provisions of LPP2.3.

Table 6 - Assessment against the relevant requirements of LPP2.3

Requirement	Provided	Compliance
Landscaping and Revegetation		
Revegetation is required to replace mature native vegetation that is proposed to be lost as a result of any development / planning application throughout the Shire.	The site is currently vacant of any vegetation. 15 trees will be planted as part of the development.	✓
Where landscaping is required, plants identified as pest plans by the Shire and listed in Schedule 1 of this Policy, are not permitted to be retained or established.	No pest plants are proposed. The species proposed are outlined in the landscaping plan in **Appendix 6**.	✓
Where landscaping is proposed within the road verge, a deed of agreement prepared by the Shire's solicitors at the applicants cost, which include lodgement of a caveat on title, is to be prepared and executed prior to the development being occupied. The deed is to include that the owner agrees to maintain the landscaping within the road verge.	Noted.	✓
All landscaping plans submitted to the Shire must be drawn to scale and detail the following: *a) The location and type of existing trees and plantings, including genus species name and whether they are to be retained.* *b) The location and type of new trees and shrubs that are proposed to be installed as part of the landscaping including genus species name.* *c) Any lawns, paths, hardscaping or other features to be established including construction materials to be used (i.e. brick paving, concrete).* *d) Any natural landscape areas to be retained.*	Noted. Refer to **Appendix 6** for a copy of the development plans that include a detailed landscaping plan.	✓

e) Those areas to be reticulated or irrigated including details on the type of reticulation.		
To allow establishment of landscaping around existing trees and tree trunks adequate space depended upon the species should be maintained and kept clear of all impervious materials. Where a tree is positioned within 3m of less from a hardscape area, root control barriers should be installed.	All trees will have sufficient space to establish roots, with no control barriers implemented.	✓
Landscaping treatments should aim to minimise water use through soil improvement and mulching to retain moisture, use of indigenous, native landscaping; installation of smart irrigation systems including monitors, controllers and subsurface irrigation.	Noted. Landscaping will aim to minimise water use through selecting native species. Specific details pertaining to irrigation will be provided during the detailed design stage.	✓
The Local Natural Areas identified in the Shire's Local Biodiversity Strategy have both landscape and biodiversity values and will be retained and protected where possible.	The subject site does not contain any Local Natural Areas.	✓
Drainage		
Where development has been proposed in an area where the lots grade to the road and the downstream system is designed with adequate capacity the following must be achieved: *a) Flow across paved areas to road/drain or legal point of discharge;* *b) All plans submitted for approval to show existing and proposed levels, and flow paths.* *c) Contain the first 15mm at source for retention or detention and slow release to downstream environment, based on soil conditions*	Stormwater management can be addressed through a suitably worded condition of approval.	✓
During construction, measures should be implemented to ensure no discharge of dust or sediment from the site.	Construction management can be addressed through a suitably worded condition of approval.	✓

Having regard to **Table 6** above, the proposal is consistent with the relevant development requirements of LPP2.3 and warrants approval accordingly.

4.4.3 Local Planning Policy 4.11 – Advertising

The Shire's Local Planning Policy 4.11 – Advertising (**LPP4.11**) provides a planning framework for the appropriate development of signage on private and public land, to ensure that public safety is maintained and to ensure that the character and amenity of the area where signage may be proposed is maintained. Table 1: Sign Permissibility outlines the permissibility of each sign type against the zone that it is located in. Wall signs are zoned "X" within the urban development and Residential zone, meaning they are not permitted.

It is considered necessary to have appropriate advertising on the proposed child care centre as it is a commercial land use that must be recognisable by the public. The proposed signage has been designed to integrate with the building and is of size that does not compromise the residential amenity of the area.

The proposed signage comprises:

- 1 x 4m x 0.9m "Buttercups Building Brighter Futures" wall sign located on the Maive Street frontage.
- 5 x 3.5m x 0.9m "Buttercups Building Brighter Futures" boundary fence signs.
    - 1 x located on Maive Street.

- 2 x located on Lawrence Way.
- 2 x Orton Road.

- 1 x 2.7m x 0.8m "Buttercups" boundary fence sign located at the Maive Street crossover.

Table 7 below provides an assessment against Table 2 of LPP4.11.

Table 7 - Assessment against the provisions of LPP4.11

Requirement	Comment	Complies
Wall Sign		
A wall sign is to only to display the name, logo or slogan of the business premises to which the sign is applied.	The proposed signage only displays the name of the tenant.	✓
The maximum single face area is 10m2 , and must not extend beyond 12.0m above the ground even if the wall is higher than this.	The proposed signage is approximately 3m² in face area and 4.6m above the ground.	✓
Must not project more than 300mm from the wall and/or fascia to which it is affixed.	The proposed signage does not project more than 300m from the wall.	✓
Must not project beyond the edges of a wall and/or fascia.	The proposed signage does not project beyond the edges of the walls.	✓
A wall sign, which extends above a wall, may be considered as a roof sign.	The proposed signage does not extend above any walls.	✓
Boundary Fence Sign		
A boundary fence sign is not to be affixed to a fence unless the fence is constructed to withstand the consequent wind or other loads.	A fences are capable of holding the proposed signage.	✓
Is a single faced sign.	All signage is single sided.	✓
The maximum sign face area is 36m2 .	No single sign exceeds 10m² in face area.	✓

The proposal is consistent with the provisions of LPP4.9 and warrants approval.

4.4.4 Local Planning Policy 4.24 – Child Minding Centres

The Shire's Local Planning Policy 4.24 – Child Minding Centres (**LPP4.24**) provides guidance for the location of child minding centres to best take advantage of the surrounding natural environment and provide a compatible setting with the locality.

Table 8 below provides an assessment of the proposed child care centre against the provisions of LPP4.24.

Table 8 - Assessment against the provisions of LPP4.24

Requirement - Acceptable Development	Comment	Complies
Location		
Child minding centres located within easy walking distance of activity centre or recreational nodes. Located within a walkable catchment for the local neighbourhood.	The proposed childcare centre is located within a walkable catchment area for the residential area to the north west of the subject site.	✓

Requirement - Acceptable Development	Comment	Complies
Larger child minding centres being encouraged to locate near or within activity centres.		
The location is close to or adjoins public open space	The proposed child care centre is 130m from Beenyup Primary School to the north and 240m from public open space, also located to the north.	✓
Child minding centres are adequately separated from any incompatible nearby uses, with this supported by a suitably qualified risk assessment forming part of an application. Such risk assessment is to consider elements such as dangerous goods, hazardous materials and public health considerations. Potentially incompatible uses (taking into account design and layout) may include, for example, outlets selling petroleum, fast-food, and alcohol or tobacco products.	The proposed child care centre is adequately separated from incompatible uses.	✓
Parking		
Parking meets the requirements of the Local Planning Scheme, and demonstrates how this meets the operational aspects of the development.	The proposed car parking layout meets the requirements of LPS2. Refer to the TIS prepared by Urbii at **Appendix 3** for further detail on the proposed parking.	✓
Landscaped parking areas in accordance with the Local Planning Scheme.	There are no landscaping requirements within LPS3. Refer to **Appendix 6** for a copy of the Landscaping Plan prepared by Urban Retreat Garden Designs.	✓
Parking areas located so as to provide a separation between surrounding dwellings and outdoor play spaces.	The parking area is proposed to be on the western portion of the site to create a satisfactory separation to the future residential properties to the west. The outdoor play area front Lawrence Way and has a significant setback from the lot to the east. Refer to **Appendix 4** for a copy of the Environmental Noise Assessment prepared by Reverberate.	✓
Traffic		
Traffic generation poses an increase of no more than 10% of the current recorded daily volumes on the roads which the development adjoins. This is confirmed by a traffic impact statement.	As demonstrated within the TIS, the forecast increase in traffic is marginal and the impact on the surrounding road network insignificant. Refer to **Appendix 3** for a copy of the Transport Impact Statement prepared by Urbii.	✓
Development facilitates full movement access to and egress from the site.	Full movement access and egress and is provide from the site. Refer to **Appendix 3** for a copy of the Transport Impact Statement prepared by Urbii. Painted arrow markings and signage will be installed to guide traffic movements. A "NO ENTRY" sign will be installed at the exit crossover.	✓
Infrastructure Requirements		
Designated pedestrian footpaths from the street to the centre and the car park to the centre.	Designated footpaths are provided from the street and car park to the entrance of the centre.	✓
Car parking visible from the street to discourage verge parking.	The car parking area is visible from Orton Road and Maive Street.	✓
Amenity		

Requirement - Acceptable Development	Comment	Complies
Outdoor play areas located in a safe place within the site, providing adequate shade, and separated from noise sensitive premises.	The outdoor play area front Lawrence Way and has a significant setback from the lot to the east. Refer to **Appendix 4** for a copy of the Environmental Noise Assessment prepared by Reverberate.	✓
Setbacks to side and rear boundaries and the orientation of openings to indoor play areas located to minimise noise impacts.	The proposed child care centre has been designed to minimize the noise impact on surrounding land uses. Refer to **Appendix 4** for a copy of the Environmental Noise Assessment prepared by Reverberate.	✓
Waste service areas appropriately screened from public areas.	The bin storage area and service area is appropriately screened from public areas.	✓
Acoustic impact assessment submitted demonstrates how noise will be managed, particularly from: *- Indoor and outdoor play areas;* *- Car parking areas and the impulsive noise that comes from car access (especially staff arriving before opening and departing after closure), opening and closing of car doors, arrangement of car parking bays (staff versus visitor).*	Noted. Refer to **Appendix 4** for a copy of the Environmental Noise Assessment prepared by Reverberate.	✓
Hours of operation 7:00am to 7:00pm Monday to Friday.	The child care centre is proposed to be operating from 6:30 am – 6:30 pm. This allows parents to drop their children at the child care centre on their way to work. The noise generated at that time will be mitigated through a restriction on the use of car parking adjacent the residential area and restriction of outdoor play before 7am.	**VARIATION**
Child minding centres are not subject to unacceptable noise that could impact the health and wellbeing of children.	Noted. The subject site is in an area of residential nature.	✓
Sites in residential areas greater than 1000m2 in areas.	The subject site is 2,304m2	✓
A maximum site coverage of 60%, in order to mimic typical residential form and to provide future ability to recede back to a residential development should that occur.	The proposed child care centre has a site coverage of 32%.	✓
Landscaping		
On site landscaping and landscape of all adjoining verge areas, in accordance with the Scheme, to provide an attractive setting and contribute to the streetscape.	Refer to **Appendix 6** for a copy of the Landscaping Plan prepared by Urban Retreat Garden Designs	✓
Design		
Development has the appearance of natural materials i.e recycled clay face brick, vertical and horizontal patterns of timber cladding, rammed earth construction, earth block features, natural stone elements for columns, sheltering gable roof.	The proposed child care centre is utilizing vertical cladding, masonry fencing and a gable roof to ensure the development has a "natural look" and matches the residential context of the surrounding properties.	✓

Requirement - Acceptable Development	Comment	Complies
Measures should be taken to ensure that play areas are large enough and of such dimensions to be useful as play areas and positive outdoor space. Side setback and leftover building areas are not included for such purpose.	The proposed development has a play space of 686m2 that is made up of two large areas to the north and east of the subject site.	✓

The proposal is generally consistent with the provisions of LPP4.24 and warrants approval accordingly.

4.5 State Planning Policies

4.5.1 State Planning Policy 3.7 Planning in Bushfire Prone Areas

The majority of the subject site is located within a designated bushfire prone area in accordance with the Department of Fire and Emergency Services (**DFES**) Map of Bushfire Prone Areas.

Accordingly, a Bushfire Attack Level Assessment (**BAL**) Report has been prepared by Ecological Australia to demonstrate appropriate bushfire risk management for the proposed development. The subject site has been identified with a BAL rating of BAL12.5.

A Bushfire Management Plan (**BMP**) and Bushfire Emergency Evacuation Plan (**BEEP**) has therefore been prepared to support the proposed development. This reporting demonstrates the proposed use and location of built form is satisfaction to address the necessary bushfire requirements.

Refer **Appendix 5** for a copy of the Bushfire Management Plan and Bushfire Emergency Evacuation Plan.

4.5.2 State Planning Policy 7.0 - Design of the Built Environment

State Planning Policy 7.0 Design of the Built Environment (**SPP7**) establishes a set of ten 'Design Principles', providing a consistent framework to guide the design, review and decision-making process for planning proposals. **Table 9** provides an assessment against the ten design principles of SPP7.

Table 9 - Assessment against Schedule 1 – Design Principles of SPP 7

Design Principle	Proposed Development Response
1. *Context and character*	• The proposed child care centre is located within the suburb of Byford. The child care centre is located in close proximity to an existing primary school and existing future residential land uses. • The locality is predominantly residential in context and character, with the subject site surrounded by single storey residential and rural lots. • The proposed facility has been designed with numerous domestic design features and integrates with the surrounding suburban context, while maintaining a distinct community/institutional feel for individual character and identification purposes. The development maintains congruity with the scale and height of existing residential dwellings forming the locality. The proposed development has been designed to be sympathetic with the surrounding residential developments, while interacting with the street frontages, to create a development connected to the surrounding context.
2. *Landscape quality*	• Extensive landscaping and trees are proposed adjacent to the car park, to provide attractive screening to the streetscape and shade for parked cars. Landscaping comprises 64m^2 of soft landscaping, 8 x native tree and 152m^2 of soft landscaping within the verge areas including 7 x native trees. Refer to **Appendix 6** for the

Design Principle	Proposed Development Response
	Landscaping Plan prepared by Urban Retreat Garden Design.
3. *Built form and scale*	• The proposed built form is consistent with and is sympathetic to its local context. The building height and scale of the child care centre building is consistent with built form of the established locality. • The single-storey scale responds to the prevailing heights in the area. The building is set back appropriately from Lawrence Way and Maive Street to ensure the development does not adversely impact on the locality. • The entrance of the proposed development and the built form features work to interact with the street and compliment the visual aspects of the area, with proposed landscaping along the street frontages. • Potentially unsightly components such as bin store structures and loading areas are treated / located to reduce impacts on the streetscape. Landscaping at street edges further enhance presentation of the development.
4. *Functionality and build quality*	• Functionality is at the core of the proposed design, to ensure access, built form interface and appropriate exposure to the child care operator. • The facility is designed in compliance with the National Childcare Regulations which require a baseline level of functionality and build quality to be achieved for child care facilities. • The facility will be constructed to a high standard with quality materials which are intended to last the full life-cycle of the development and require minimal maintenance, allowing educators to focus on providing childcare services. • Landscape planting comprises native species which are climatised to the area and suited to the soil types of Byford, with screen planting proposed to the west of the development along the lot boundary. • The proposed crossovers to Maive Street and Cap Road ensures the site results in a logical traffic flow of vehicles.
5. *Sustainability*	• In terms of social and economic impact, the proposed child care premises is likely to result in significant net benefits as it will: o Actively contribute to meeting the demand for childcare places in the area; o Facilitate the establishment of a new business; and o Create direct and indirect employment opportunities. • From an environmental point of view, the building includes various design features which would reduce dependency on resources, including a north-facing activity space, east-west facing full height windows and large openings providing cross-ventilation, high quality internal fixtures with longevity, etc. • The proposed development contains landscaped areas to enable suitable planting of low, medium and higher scale plants/trees. This will aid providing greater shade to the car park and outdoor play area.
6. *Amenity*	• The achievement of a high level of amenity for children, nearby residents, visitors and staff have been central to the design of the child care centre. • Amenity for users has been enhanced through the provision of spacious internal rooms and outdoor play area, easy pedestrian access, accessible vehicle parking, high-quality landscaping and the location of the waste storage area within the car park (which is screened by landscaping).

Design Principle	Proposed Development Response
	• The amenity of the neighbourhood has been considered through the use of a residential building design, a sympathetic scale of built form, various built form treatments and the use of landscaping to soften the interface. • The proposed child care centre has been carefully designed to reflect the residential character of the locality. • The development application is supported by a range of expert consultant reports demonstrating the suitability of traffic / servicing, acoustic management, and landscaping arrangements to ensure the amenity of the locality is preserved and supported by the proposed development.
7. Legibility	• The proposed child care centre provides clear and legible vehicle access via Maive Street which directs staff and patrons to the car park. • The proposal is a clear and attractive feature on the corner of Lawrence Way and Orton Road. • A defined pedestrian path offers pedestrian access from the street and the parking area to the entrance of the building to ensure universal ease of movement and safe navigation throughout the site. • The signage is a recognisable feature of the facility which will reinforce its role as a community focal point and draw patrons to the entry.
8. Safety	• The facility will be constructed in accordance with regulatory standards which optimise safety and security for occupants. • The child care centre will allow for passive surveillance to the streetscapes. • The car park is of a suitable size and configuration, and is compliant with relevant Australian Standards to ensure safe and proper interaction between pedestrians and vehicles.
9. Community	• The child care centre will be a community focal point. Local families will be likely to place their children in the centre and are likely to interact on a daily basis as a result of this. The development will facilitate passive social interaction by providing services that m any members of the community will use. • It is likely the community fabric will be strengthened as a result of the centre being established. There are also expected to be synergies with local schools, where families may have children attending the child care centre.
10. Aesthetics	• The location of the child care centre appropriately addresses the three street frontages. • The potentially unsightly areas (i.e. bin stores) are given design attention through materiality and treatment to ensure they do not detract from the value of the locality and are located in areas less visible from the adjoining roads.

Having regard to **Table 9**, the proposed development is largely consistent with SPP7.0 and warrants approval.

5 CONCLUSION

This application seeks development approval for a Child Care Centre on the subject site. The proposed development is generally consistent with the applicable planning framework. The proposed development warrants approval for the following reasons:

1. The proposed development will provide increased community services and amenity to residents and workers of the surrounding locality.
2. The proposed development is site responsive, complementing the residential character of the locality and adjoining residential properties.
3. The design of the proposed development is of an appropriate bulk and scale, with high-quality, contemporary materials, resulting in a quality built form outcome.
4. Substantial areas of high quality landscaping are proposed.
5. The proposed development is situated in close proximity to open space and local places of employment.

The proposed development has substantial merit and warrants approval. We therefore respectfully request the Metro Outer Joint Development Assessment Panel grant approval to the application.

Appendix 1: Certificate of Title

Appendix 2: Development plans

Appendix 3:
Transport Impact Statement

Appendix 4:
Environmental Noise Assessment

Appendix 5: Bushfire Management Plan and Bushfire Emergency Evacuation Plan

Appendix 6: Landscaping Plan

DA ISSUE

ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	Date
A	PRELIMINARY	19/12/2022
B	Revison 2	12/01/2023
C	DA ISSUE	16/02/2023
D	OPERATOR CHANGED	22/02/2024

BEENYUP GROVE CHILDCARE CENTRE

LAWRENCE WAY BYFORD WA 6122

BROLA FALCONER

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Telephone : 08 6382 0303 ABN 65 007 846 586
brownfalconer.com.au

BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

COVER SHEET

Scale	1 : 1		
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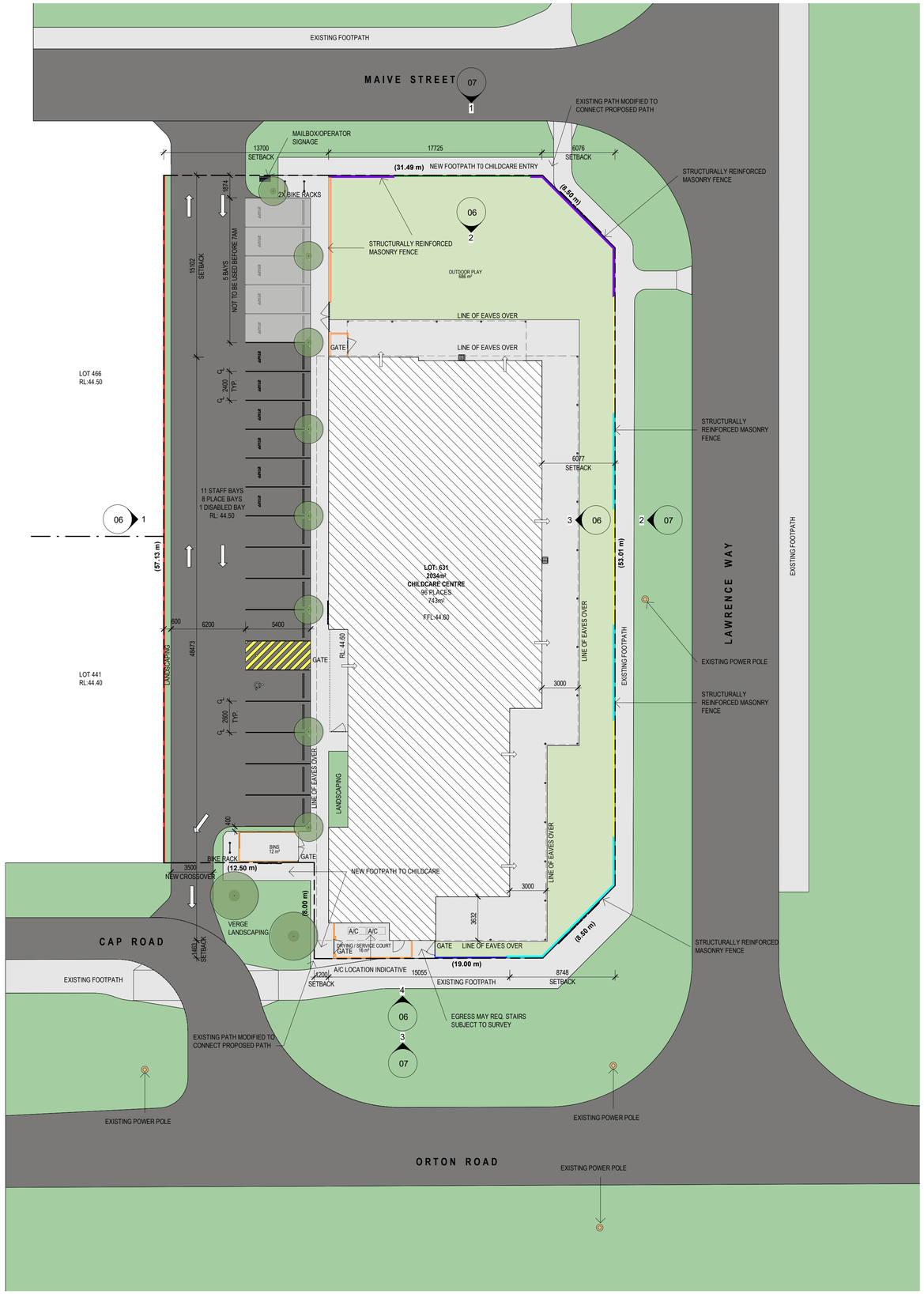
Date	22/02/2024		
Job No.	2022065		
Dwg No.	**2809 01**	Rev:	**D** A1 SHEET



1 - SITE PLAN - INTERIM PLAN

1 : 200

LOCATION PLAN

NTS

NOTE
FOOTPATHS, ROAD LAYOUT, SITE BOUNDARIES, SERVICE LOCATION AND LEVELS ARE INDICATIVE ONLY. QUALIFIED SURVEYOR IS TO UNDERTAKE FEATURE CONTOUR SURVEY PRIOR TO ANY DEVELOPMENT.

FENCE TYPES

FN01	2.4m HIGH VERTICAL BLADE SLAT FENCING WITH CLEAR ACRYLIC BACKING FENCE COLOUR: COLORBOND DUNE	
FN02	2.4m HIGH RENDERED MASONRY WALL COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING	
FN03	2.2m HIGH COLORBOND FENCE: MONUMENT	
FN04	1.8m HIGH VERTICAL BLADE SLAT FENCING WITH CLEAR ACRYLIC BACKING FENCE COLOUR: COLORBOND DUNE	
FN05	2.2m HIGH RENDERED MASONRY WALL COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING	
FN06	1.8m HIGH RENDERED MASONRY WALL COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING	
FN07	2.2m HIGH VERTICAL BLADE SLAT FENCING WITH CLEAR ACRYLIC BACKING FENCE COLOUR: COLORBOND DUNE	

PROJECT SUMMARY

BEENYUP GROVE CHILD CARE CENTRE

NUMBER OF PLACES	**96**
TOTAL SITE AREA	2304m²
SITE AREA PER PLACE	24m²
BUILDING AREA	743m²
BUILDING AREA PER PLACE	7.74m²
LANDSCAPING AREA	64m²
LANDSCAPING % OF SITE	2.8%
TOTAL OUTDOOR PLAY AREA REQ	672m²
OUTDOOR PLAY AREA PROVIDED	**693m²**
REGULAR PARKING BAYS	8
STAFF PARKING BAYS	11
DISABLED PARKING BAYS	1
TOTAL BAYS PROVIDED	**20(19.2 REQ.)**

ROOM	PLACES	UNENCUMBERED SPACE PROV.	UNENCUMBERED SPACE REQ.	STAFF RATIO	STAFF REQ.
ACTIVITY 1	8	26.3m²	26m²	1:4	2
ACTIVITY 2	8	26.1m²	26m²	1:4	2
ACTIVITY 3	20	66m²	65m²	1:5	4
ACTIVITY 4	20	65.2m²	65m²	1:5	4
ACTIVITY 5	20	65.1m²	65m²	1:10	2
ACTIVITY 6	20	65.4m²	65m²	1:10	2
TOTAL	**96**				**16**

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SITE PLAN - INTERIM

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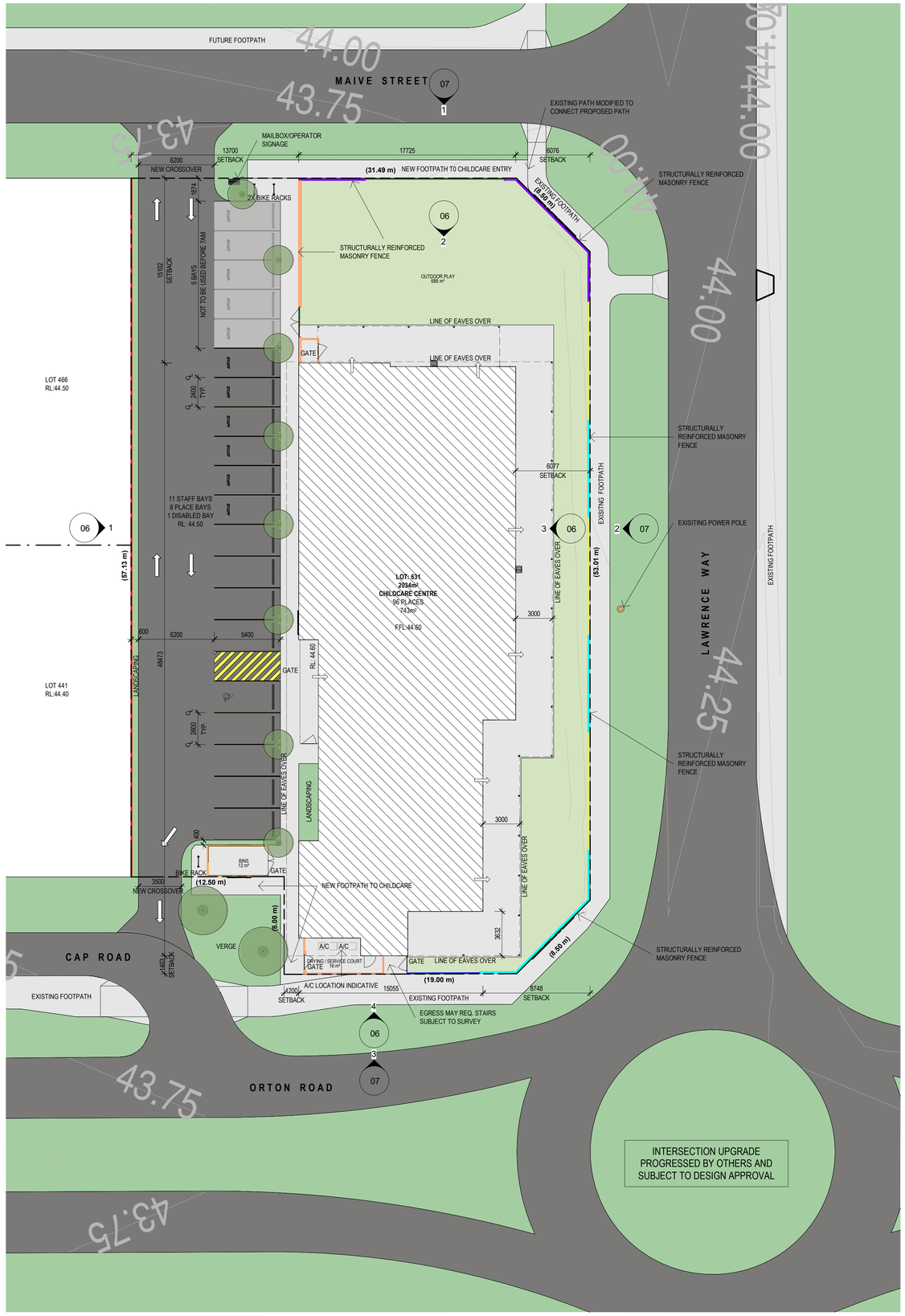
Date	22/02/2024
Job No.	2022065
Dwg No.	**2809 02** Rev: **E** A1 SHEET



1 - SITE PLAN - FUTURE PLAN

1 : 200

LOCATION PLAN

NTS

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SITE PLAN - FUTURE PLAN

Scale	As indicated
Drawn	SM Checked SJ
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Job No.	2022065
Dwg No.	**2809 03** Rev: **E** A1 SHEET

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BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

FLOOR PLAN

Scale	1 : 100		
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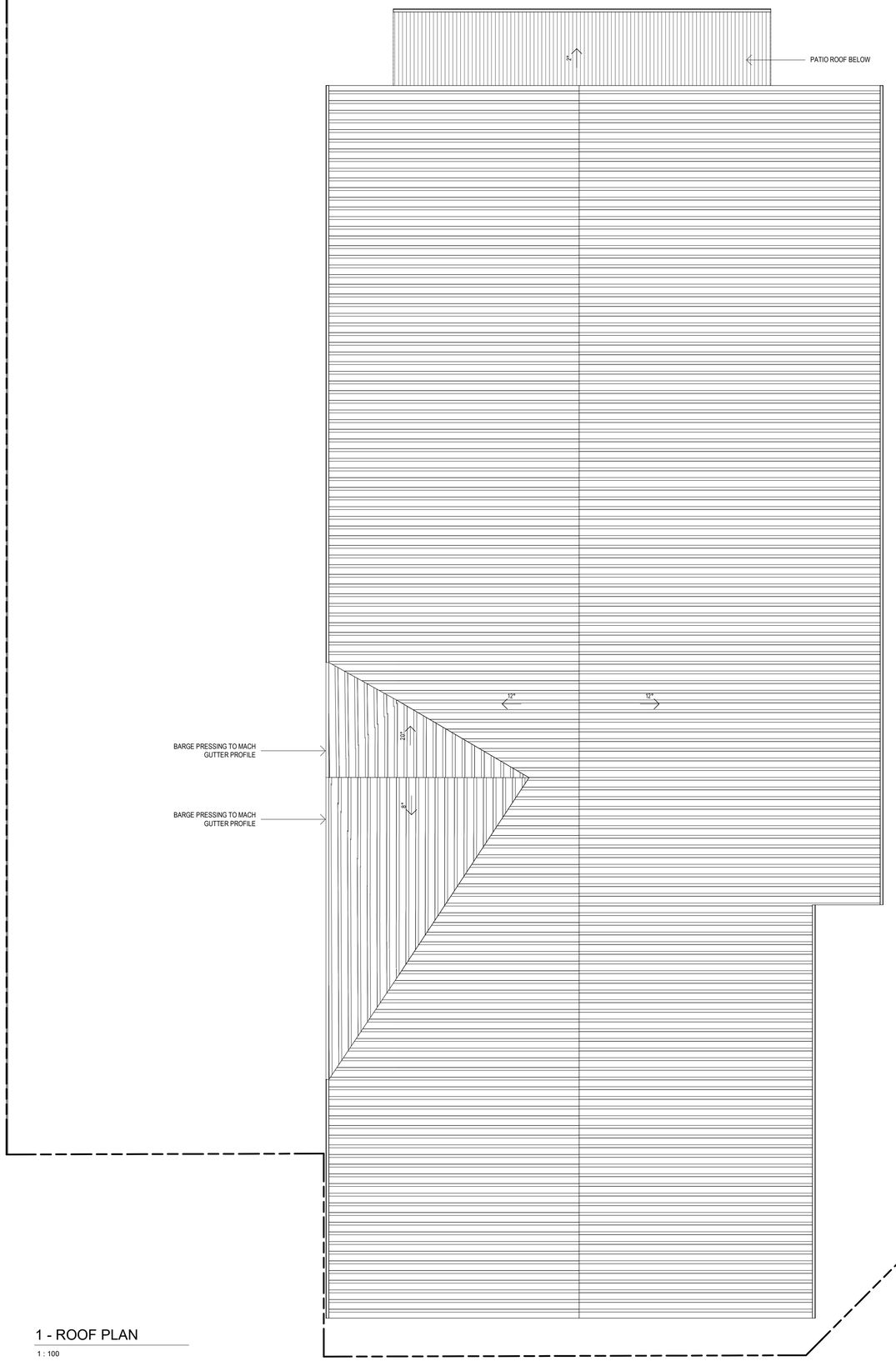
Date	22/02/2024		
Job No.	2022065		
Dwg No.	**2809 04**	Rev:	**E** A1 SHEET



1 - ROOF PLAN

1 : 100

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ROOF PLAN

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Drawn	SM	Checked	SJ
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Job No.	2022065		
Dwg No.	**2809 05**	Rev:	**B**

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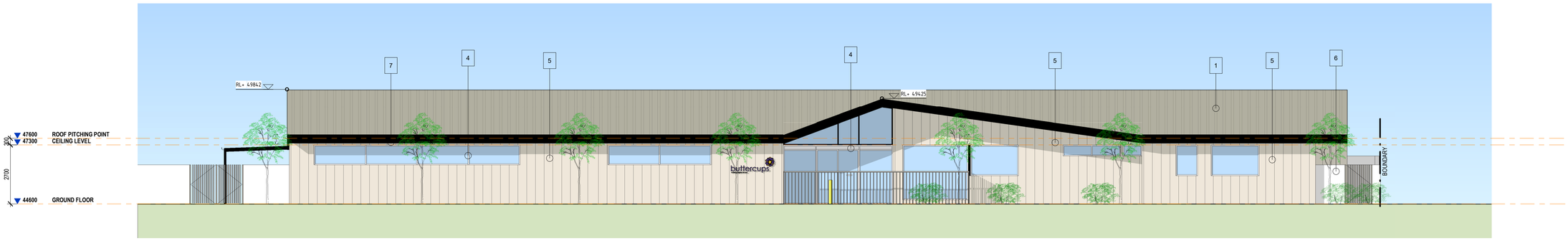

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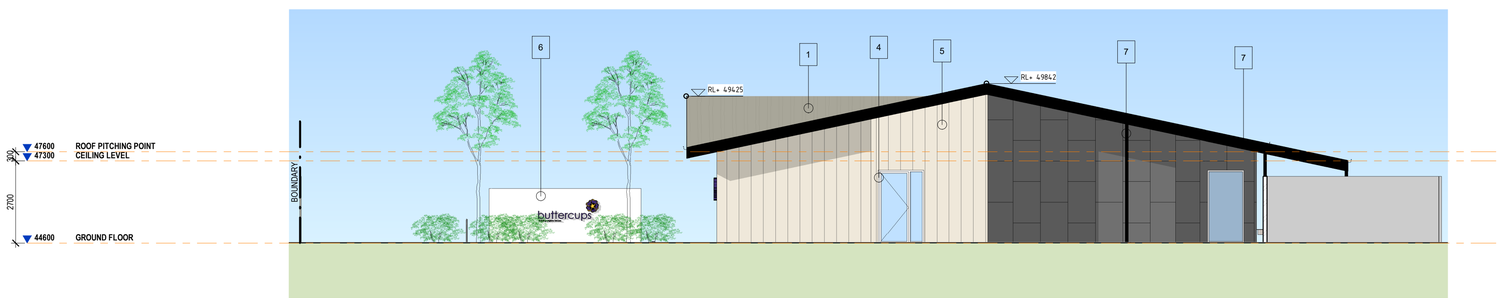
2 - NORTH ELEVATION

1 : 100

3 - EAST ELEVATION

1 : 100



4 - SOUTH ELEVATION

1 : 100

1 COLORBOND ROOF SHEETING
COLOUR: SURFMIST

2 AXON CLADDING. COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING

3 MATRIX PANEL CLADDING WITH ANTI-GRAFFTI COATING

4 ALUMINUM DOORS / WINDOW POWDERCOAT CLEAR ANODISED

5 AXON CLADDING. COLOUR: DULUX DIESKAU WITH ANTI-GRAFFTI COATING

6 RENDERED MASONARY WALL: COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING

7 SUNSHADES, COLUMN, FASCIA POWDERCOAT: BLACK

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BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

ELEVATIONS

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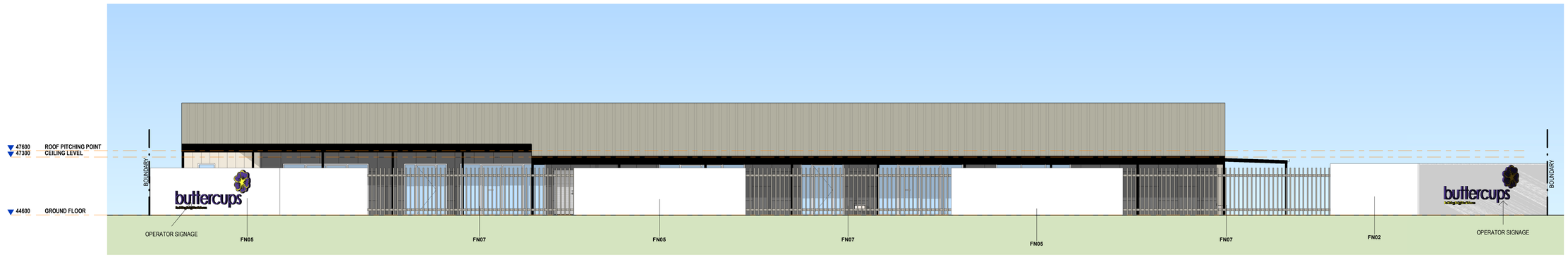
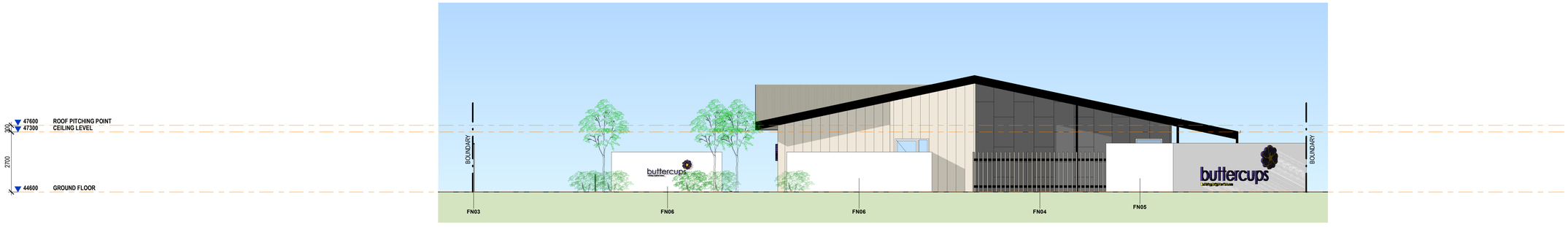


2 - LAWRENCE WAY

1 : 100



3 - ORTON ROAD

1 : 100

FENCE TYPES

FN01	2.4m HIGH VERTICAL BLADE SLAT FENCING WITH CLEAR ACRYLIC BACKING FENCE COLOUR: COLORBOND DUNE	
FN02	2.4m HIGH RENDERED MASONRY WALL COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING	
FN03	2.2m HIGH COLORBOND FENCE: MONUMENT	
FN04	1.8m HIGH VERTICAL BLADE SLAT FENCING WITH CLEAR ACRYLIC BACKING FENCE COLOUR: COLORBOND DUNE	
FN05	2.2m HIGH RENDERED MASONRY WALL COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING	
FN06	1.8m HIGH RENDERED MASONRY WALL COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING	
FN07	2.2m HIGH VERTICAL BLADE SLAT FENCING WITH CLEAR ACRYLIC BACKING FENCE COLOUR: COLORBOND DUNE	

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BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

STREET ELEVATIONS

Scale	As indicated		
Drawn	SM	Checked	SJ
Date	22/02/2024		
Job No.	2022065		
Dwg No.	**2809 07**	Rev:	**E**

A1 SHEET

DA ISSUE

ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	Date
A	PRELIMINARY	19/12/2022
B	Revision 2	12/01/2023
C	Revision 3	23/01/2023
D	DA ISSUE	16/02/2023
E	OPERATOR CHANGED	22/02/2024

NORTH WEST PERSPECTIVE

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BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

3D VIEW

Scale	1 : 1		
Drawn	SM	Checked	SJ
Date	22/02/2024		
Job No.	2022065		
Dwg No.	**2809 08**	Rev:	**E** A1 SHEET

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ENTRY

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BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

3D VIEWS

Scale	1 : 1		
Drawn	SM	Checked	SJ
Date	22/02/2024		
Job No.	2022065		
Dwg No.	**2809 09**	Rev:	**E** A1 SHEET

DA ISSUE

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CORNER OF MAIVE STREET AND LAWRENCE WAY

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BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

3D VIEWS

Scale	1 : 1		
Drawn	SM	Checked	SJ
Date	22/02/2024		
Job No.	2022065		
Dwg No.	**2809 10**	Rev:	**E** A1 SHEET

urbii
Sustainable Transport. Safe Solutions

Lot 631 (108) Lawrence Way, Byford
Proposed Child Care Centre

TRANSPORT IMPACT STATEMENT

Prepared for:
Planning Solutions

March 2024

Lot 631 (108) Lawrence Way, Byford

Prepared for: Planning Solutions
Prepared by: Paul Ghantous
Date: 12 March 2024
Project number: U22.128

Version control

Version No.	Date	Prepared by	Revision description	Issued to
U22.128.r01c	11/03/24	Paul Ghantous	FINAL	Planning Solutions

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1 Introduction

This Transport Impact Statement has been prepared by Urbii on behalf of Planning Solutions with regards to the proposed child care centre, located at Lot 631 (108) Lawrence Way, Byford.

The subject site is situated on the north-west corner of Lawrence Way and Orton Road, as shown in Figure 1. The site is presently vacant and is surrounded by mostly vacant residential land which is under development. Beenyup Primary School is located nearby to the north.

It is proposed to develop the site into a child care centre catering for up to 96 children and around 16 staff.

The key issues that will be addressed in this report include the traffic generation and distribution of the proposed development, access and egress movement patterns, car parking and access to the site for alternative modes of transportation.

Figure 1: Subject site location

2 Proposed development

The proposal for the subject site is for a child care centre comprising:

- A child care centre with rooms allocated to different age groups;
- Outdoor play area;
- 20 onsite car parking bays, including one ACROD bay;
- Bicycle parking for six bicycles;
- End of trip facilities including lockers, a shower and change room; and
- Bin store.

Vehicle access to the site is proposed to be via one full-movement crossover on Maive Street and one exit only crossover on a service road running parallel with and connecting to Orton Road. The service road is known as Cap Road.

People walking and cycling will access the development from the external path network abutting the site.

The proposed development plans are included for reference in Appendix A.

3 Vehicle access and parking

3.1 Existing vehicle access

There is no vehicle access currently servicing the site. The site is a vacant Lot. A service road presently runs along the southern boundary of the site. The service road connects to Orton Road and provides convenient vehicle access for properties facing Orton Road.

3.2 Proposed vehicle access

Vehicle access for the child care centre is proposed to be via one full-movement crossover on Maive Street and one exit only crossover on the service road running parallel with Orton Road. The interim access arrangement is shown in Figure 2. The future access arrangement (after planned modifications on Orton Road by others) is shown in Figure 3.

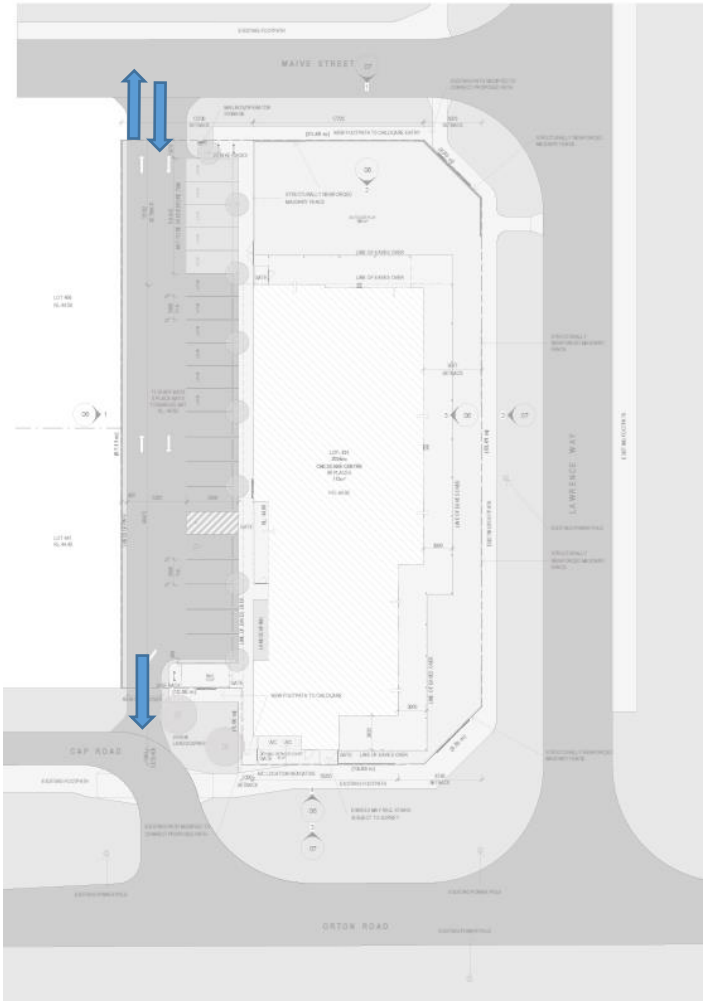


Figure 2: Proposed development vehicle access (interim)

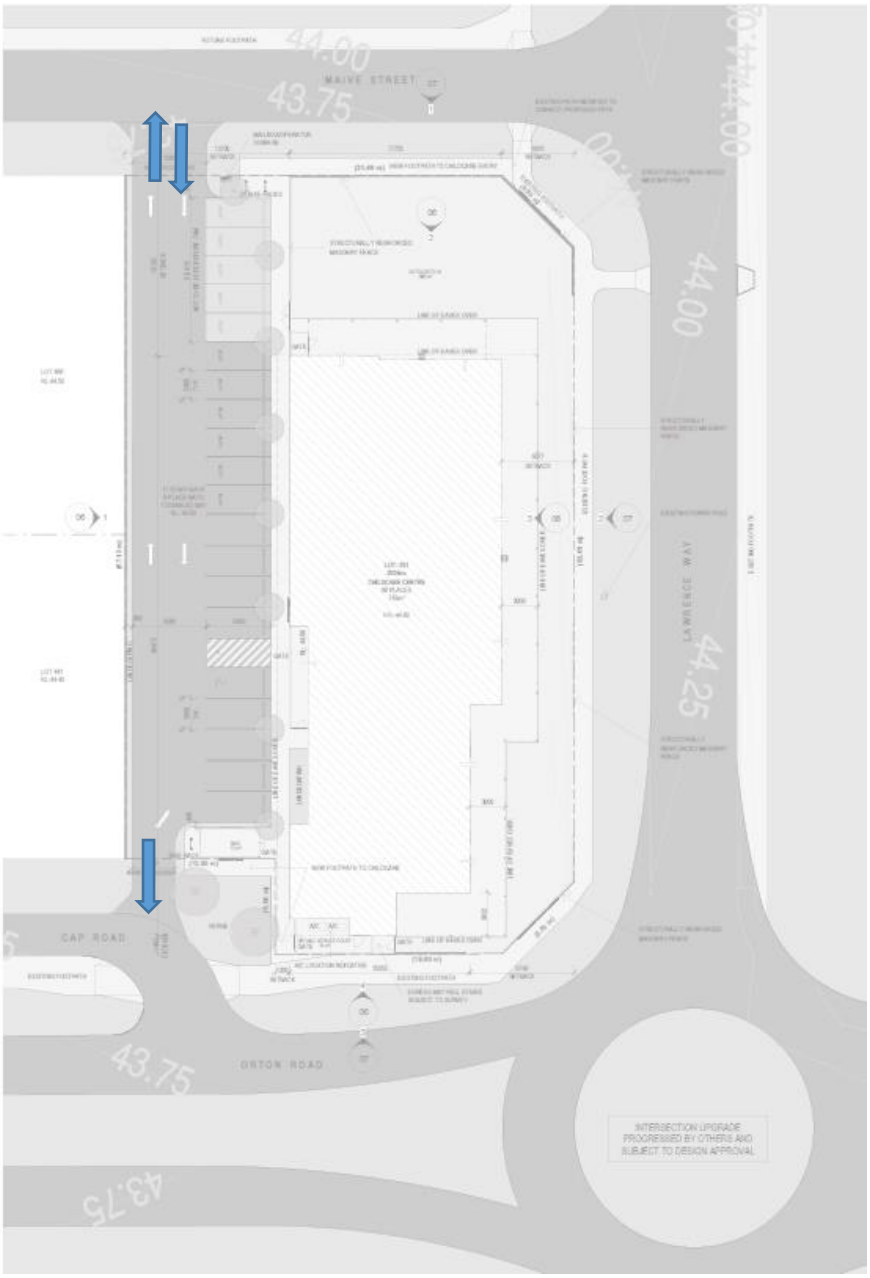


Figure 3: Proposed development vehicle access (future)

Painted arrow markings and signage will be installed to guide traffic movements. A “NO ENTRY” sign will be installed at the exit crossover.

3.3 Car parking layout

Dimensions of car parking aisles and bays are compliant with AS2890.1. Onsite bays allocated for staff use only are 2.4m wide by 5.4m long. Visitor bays are 2.6m wide. An aisle width of 6.2m has been provided. The ACROD bay is designed to AS2890.6 with a shared space and bollard.

3.4 Parking requirements

The Shire of Serpentine Jarrahdale *Town Planning Scheme* requires the following car parking provision for “child care premises”:

- 1 bay per 10 children and 1 bay per employee with a minimum of 3 spaces.

Application of the above rates results in a planning requirement of **26 bays**. A total of 20 car parking bays are provided onsite, which is an ‘on-paper shortfall’. The planning assessment of car parking provided to Urbii is presented in Table 1.

Table 1: Shire parking requirement for the proposed development

Land use	Parking standard	Required car bays	Provided
Child Care Premises	*1 space per 10 children accommodated under maximum occupancy and 1 bay per employee with a minimum of 3 spaces.*	1 space per 10 children = 9.6 (10) spaces 1 space per employee = 16	20 car bays (including ACROD bay)
Total		**Total bays required:** 26	**Total bays provided:** 20

Source: Planning Solutions

3.5 Pick-up / drop-off parking

Modelling was undertaken to estimate the demand for children's pick-up/drop-off parking. As detailed in Section 6 of this report, the peak inbound traffic for children's drop-off is estimated to be 39 cars in a 60-minute period. The RTA NSW *Guide to Traffic Generating Developments*, surveyed the average length of stay for drop-offs to be 6.8 minutes.

For conservative analysis, it was assumed that the average length of stay would be 7 minutes. The Poisson Distribution modelling presented in Figure 4 shows that in any 7-minute period during the peak hour, the 95th percentile number of pick-ups/drop-offs within the car park will be **8 vehicles or less**. Outside of peak hours the demand for visitor parking will be much lower.

Traffic volume	39	**(vph)**	0.01083	**(vps)**
Time period	7	**(min)**	420	**(sec)**
Mean number of vehicles	4.55			

Probability distribution table **95th percentile:** 8 **vehicles**

(x)	p(x)	P(x)
1	0.04808	0.05865
2	0.10938	0.16803
3	0.1659	0.33393
4	0.18871	0.52264
5	0.17173	0.69437
6	0.13023	0.82459
7	0.08465	0.90924
8	0.04814	0.95738
9	0.02434	0.98172
10	0.01107	0.99279
11	0.00458	0.99737
12	0.00174	0.99911
13	0.00061	0.99972
14	0.0002	0.99992
15	6E-05	0.99998
16	1.7E-05	0.99999
17	4.6E-06	1
18	1.2E-06	1
19	2.8E-07	1
20	6.3E-08	1

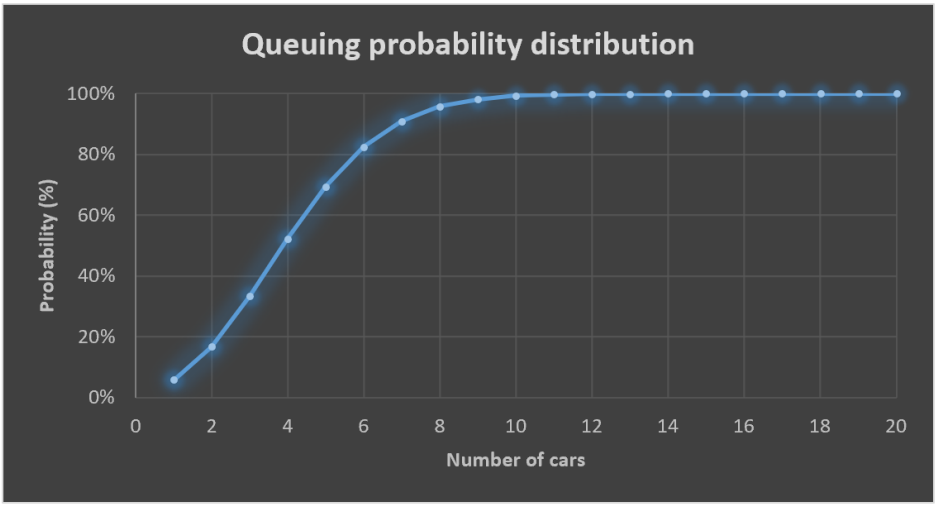


Figure 4: Probability analysis for children's drop-off/pick-up

3.6 Recommended parking allocation

It is proposed to provide a total of 20 car parking bays for the child care centre. This includes one ACROD bay. The following allocation is recommended, based on the parking analysis undertaken in this section of the TIS:

- Maximum 12 car bays reserved for staff onsite.
- Minimum 8 visitor car parking bays reserved for pick-up and drop-off onsite.

It is recommended that the onsite visitor car parking bays have time restriction signage installed "P5min" parking (5 minutes) applicable Monday to Friday between 6:30am to 9:30am and 3:00pm to 6:00pm.

The proposed development plan shows 8 bays are reserved for by visitors. Up to 12 bays can be used for staff parking (including the ACROD bay). 12 bays used for staff parking represents a target mode share of 75% for car drivers. The remaining 25% of staff will travel by walking, cycling, public transport, rideshare or drop-off. This target mode share is reasonable for the planned land use. For example, 69.9% of workers in the Shire travel by car[1].

Five of the staff parking bays will not be used before 7:00am, for acoustic impact mitigation.

3.7 Parking demand management

The analysis presented in this report indicates that there will be enough car parking supply to meet the needs of the development. However, should there be a need to manage car parking demand in the future, several strategies can be considered.

A sustainable transport network should prioritise active and sustainable modes of transport, with walking, cycling, public transport, car sharing, and then single occupancy cars ranked in order of priority (Figure 5).

[1] https://economy.id.com.au/serpentine-jarrahdale/workers-key-statistics

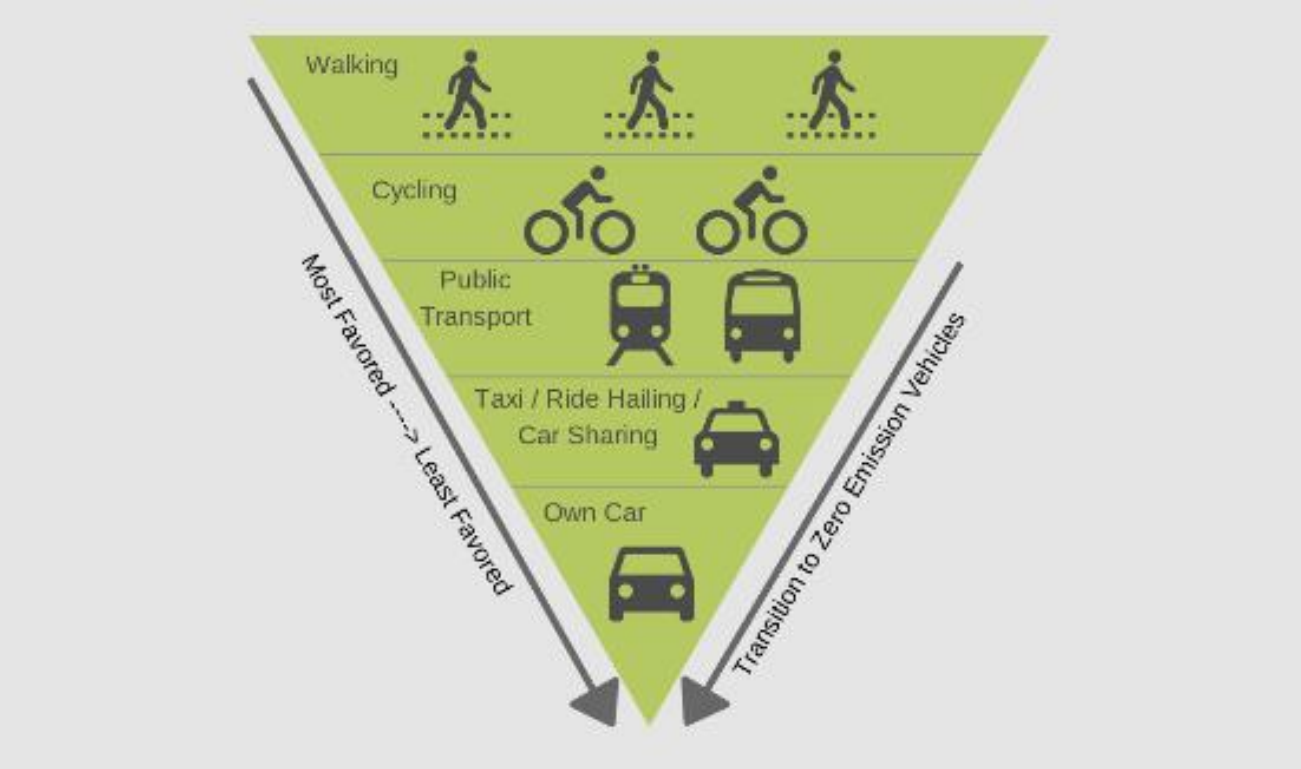


Figure 5: Sustainable transport hierarchy

Some strategies which can be considered for promoting sustainable transport and lowering demand for car parking may include, but are not limited to:

- Running healthy, active transport campaigns and promotions in the workplace. For example, tracking walking and active transport and offering prizes or other incentives for participants.
- Educating staff on public transport, walking and cycling travel options as part of training and recruitment.
- Offering subsidies or other incentives for using public transport.
- Monitoring and maintaining bicycle parking to ensure enough parking is provided and is maintained in good condition.
- Providing free charging stations for micro-mobility vehicles such as e-scooters and e-bikes.
- Implementing a car-pooling register for staff to match-up and car pool together. This can also be incentivised by issuing car-pooling badges for display on the dashboard and providing allocated priority car-pooling parking bays within the site.
- Offer tele-commuting work opportunities for staff who can complete work duties remotely, for example administrative staff.
- Staggering staff start and finish times so that peak staff numbers are rostered between 9:30am and 3:00pm, outside the peak times for drop-off and pick-up of children.

4 Provision for service vehicles

The proposed development will not generate significant service vehicle traffic. It is recommended that smaller vehicles such as vans or utes be utilised for deliveries to the site. These smaller vehicles can park in a car parking bay for a brief time during ‘off-peak’ periods.

Waste collection is proposed to be facilitated internally, so trucks will enter the site in forward gear from Maive Street, stop in the car park to collect waste, then exit the site in forward gear via the service road to the south. Waste collection will be scheduled outside of the peak activity hours of the facility.

The swept path analysis is presented in Appendix B, and confirms that there is satisfactory geometry for waste truck access and manoeuvring.

5 Hours of operation

The RTA NSW *Guide to Traffic Generating Developments* indicates that pre-school centres typically have peaks in the periods 8:00am to 9:00am and 2:30pm to 4:00pm.

6 Daily traffic volumes and vehicle types

6.1 Traffic generation

The traffic volume that will be generated by the proposed development has been estimated using trip generation rates derived with reference to the following sources:

- Roads and Traffic Authority of New South Wales *Guide to Traffic Generating Developments* (2002).

The trip generation rates adopted are detailed in Table 2.

Table 2: Adopted trip rates for traffic generation

Land use	Trip rate source	Daily rate	AM rate	PM rate	AM-in	AM-out	PM-in	PM-out
Child Care	RTA NSW	4	0.8	0.8	50%	50%	50%	50%

The RTA Guide specifies a rate of 1.4 trips per child between 7am and 9am (2 hours), so it was assumed that 0.8 trip per child would be generated in the peak hour (8am to 9am). The RTA Guide specifies 0.8 trips per child between 2:30pm and 4:00pm. For simplicity, it was conservatively assumed 0.8 trip per child would also be generated in the PM peak hour.

Child care centres have well defined peak periods in their daily traffic profiles therefore the daily trip rate would be no more than 4 trips per child.

The estimated traffic generation of the proposed development is detailed in Table 3. The proposed development is estimated to generate 384 vehicles per day (vpd), with 78 vehicles per hour (vph) generated during the AM and PM peak hours, respectively.

These trips include both inbound and outbound vehicle movements. It is anticipated that most of the vehicle types would be passenger cars and SUVs.

Table 3: Development traffic generation – Weekday AM and PM peak hours

Land use	Quantity	Daily Trips	AM Trips	PM Trips	AM Peak Trips		PM Peak Trips	
					IN	OUT	IN	OUT
Child Care	96	384	78	78	39	39	39	39
Total		384	78	78	39	39	39	39

6.2 Impact on surrounding roads

The WAPC Transport Impact Assessment Guidelines for Developments (2016) provides the following guidance on the assessment of traffic impacts:

"As a general guide, an increase in traffic of less than 10 percent of capacity would not normally be likely to have a material impact on any particular section of road but increases over 10 percent may. All sections of road with an increase greater than 10 percent 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 percent 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."

The proposed development will not increase traffic flows on any roads adjacent to the site by the quoted WAPC threshold of +100vph to warrant further analysis. Therefore, the impact on the surrounding road network is moderate (Figure 6).

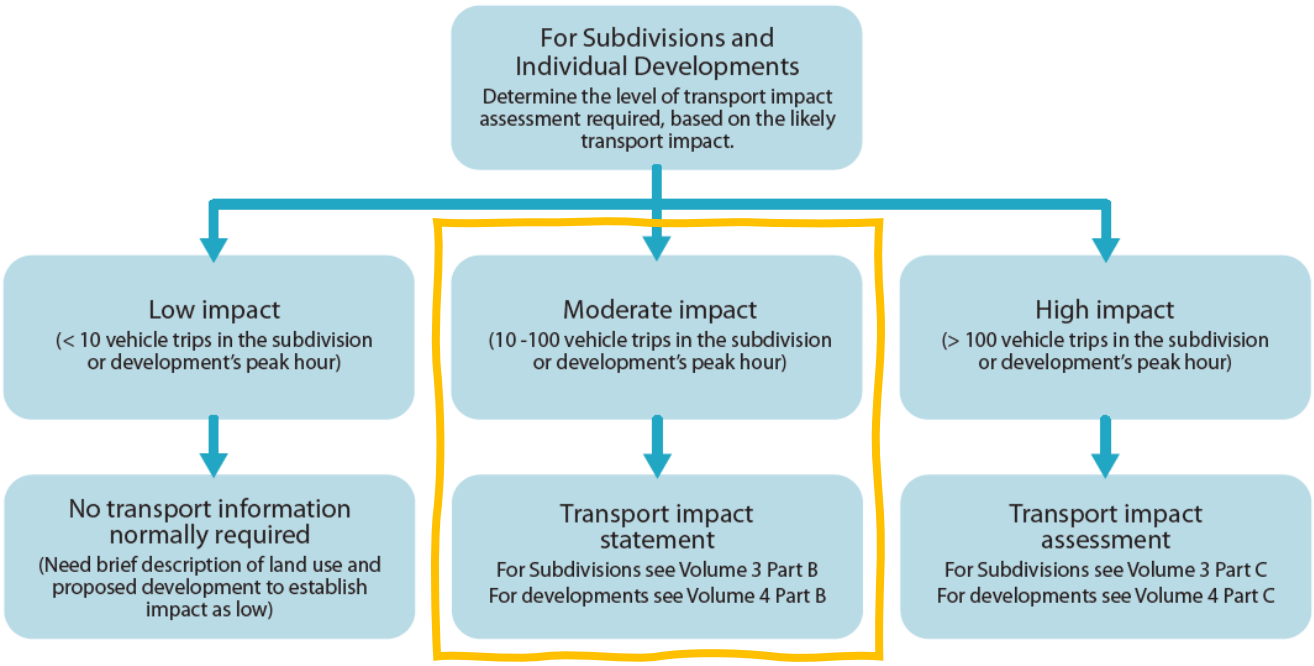


Figure 6: Level of traffic impact for subdivisions and individual developments

Source: WAPC *Transport Impact Assessment Guidelines Volume 4: Individual Developments*, August 2016

7 Traffic management on the frontage roads

Information from online mapping services, Main Roads WA, Local Government, and/or site visits was collected to assess the existing traffic management on frontage roads.

Lawrence Way near the subject site is an approximately 7m wide, two-lane undivided road. Footpaths are provided along both sides of the road. A pedestrian crossing with kerb ramps is provided adjacent to the site.

Lawrence Way is classified as an *Access Road* in the Main Roads WA road hierarchy (Figure 7) and operates under a built-up area speed limit of 50km/h. A school zone speed limit of 40km/h is applicable between 7:30am to 9:00am and 2:00pm to 3:30pm on School Days (Figure 8).

Access Roads are the responsibility of Local Government and are typically for the provision of vehicle access to abutting properties (Figure 9).

Orton Road near the subject site is an approximately 6.5m wide, two-lane undivided road. A footpath is provided along the northern side of the road.

Orton Road is classified as a *Local Distributor Road* in the Main Roads WA road hierarchy (Figure 7) and operates under the default speed limit (Figure 8). Local Distributor Roads are the responsibility of Local Government and are typically for the movement of traffic within local areas and to connect access roads to higher order Distributors.

Traffic count data obtained from the Shire of Serpentine Jarrahdale indicates that Orton Road carried average weekday traffic flows of under 500 vehicles per day (vpd) in 2020, with a recorded 85th percentile speed of 79km/h and 16.7% HVs.

Maive Street near the subject site is an approximately 6m wide, two-lane undivided road. A footpath is provided on the northern side of the road. A pedestrian crossing with kerb ramps is provided adjacent to the site.

The intersection of Orton Road and Lawrence Way is planned to be upgraded to a 3-leg roundabout. The proposed development plans show the future upgrade of Orton Road to a dual carriageway standard with the roundabout intersection. Advice was sought from the Shire regarding the planning time horizons for these upgrades. However, no information was available at the time this report was prepared.

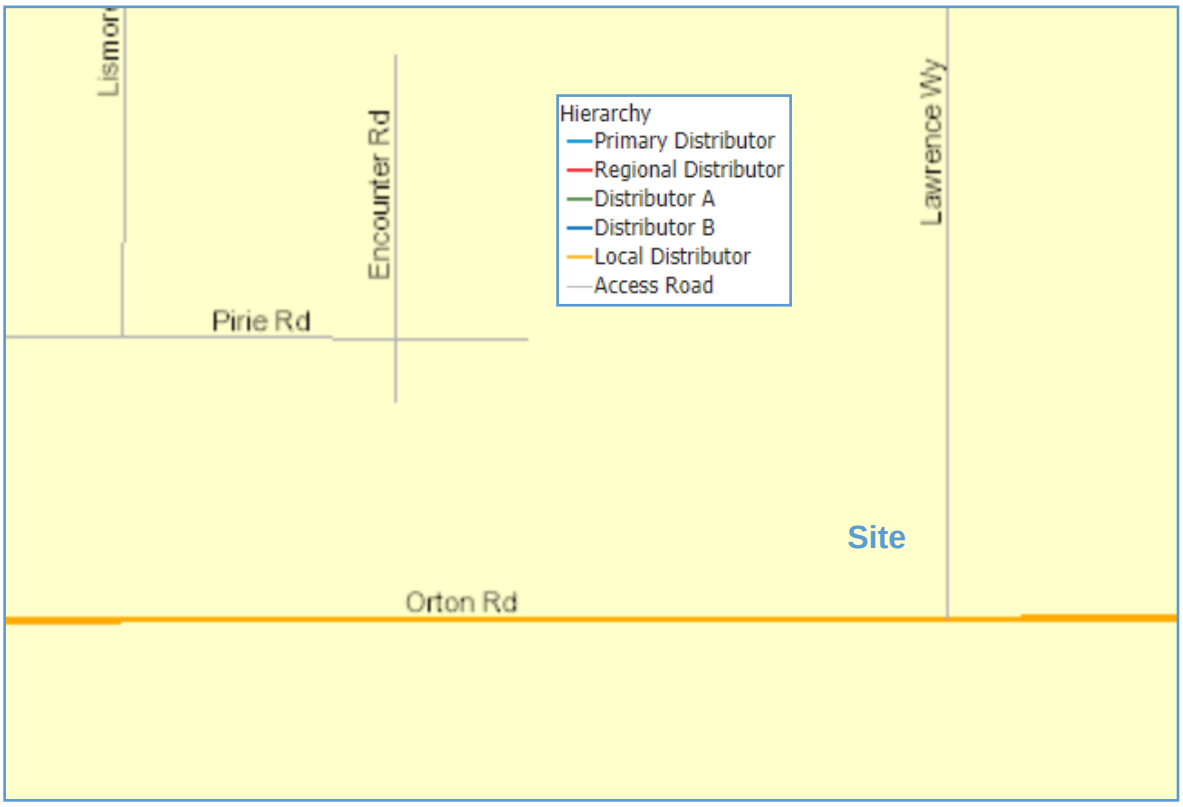


Figure 7: Main Roads WA road hierarchy plan

Source: Main Roads WA Road Information Mapping System (RIM)

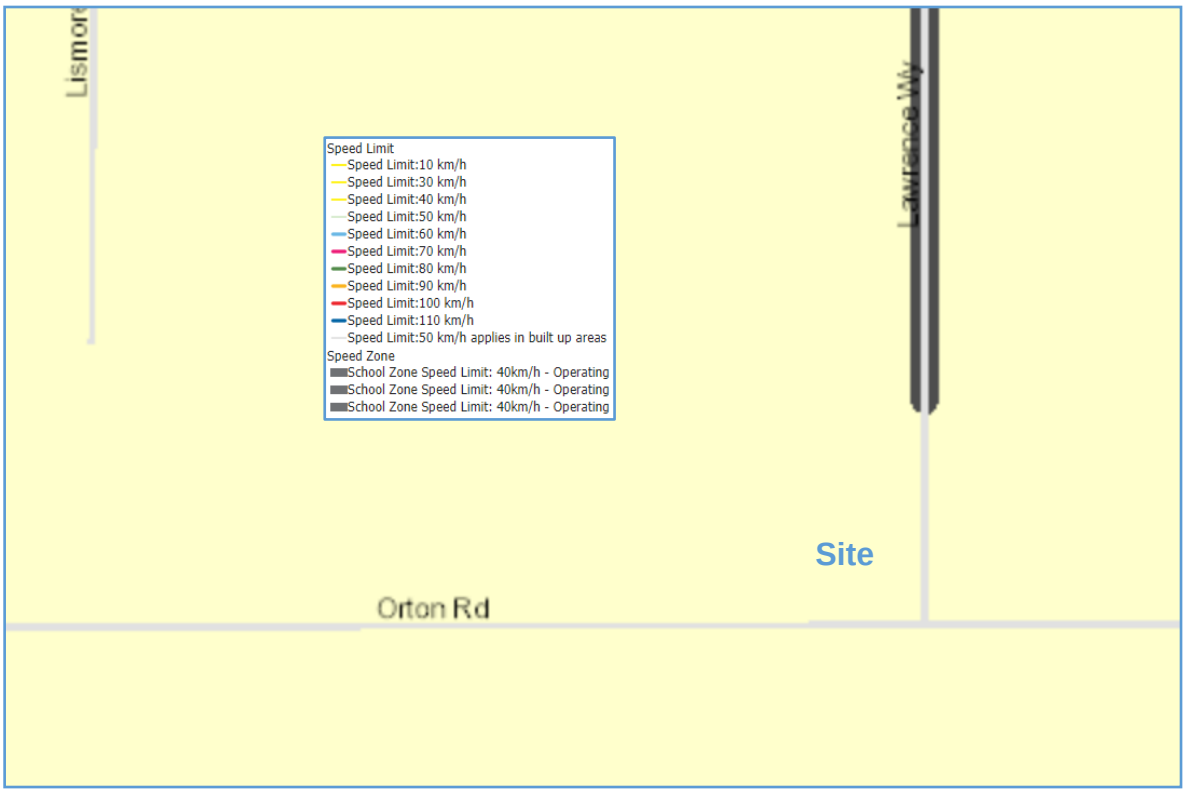


Figure 8: Main Roads WA road speed zoning plan

Source: Main Roads WA Road Information Mapping System (RIM)

ROAD HIERARCHY FOR WESTERN AUSTRALIA
ROAD TYPES AND CRITERIA (see Note 1)

CRITERIA	PRIMARY DISTRIBUTOR (PD) (see Note 2)	DISTRICT DISTRIBUTOR A (DA)	DISTRICT DISTRIBUTOR B (DB)	REGIONAL DISTRIBUTOR (RD)	LOCAL DISTRIBUTOR (LD)	ACCESS ROAD (A)
Primary Criteria						
1. Location (see Note 3)	All of WA incl. BUA	Only Built Up Area.	Only Built Up Area.	Only Non Built Up Area. (see Note 4)	All of WA incl. BUA	All of WA incl. BUA
2. Responsibility	Main Roads Western Australia.	Local Government.	Local Government.	Local Government.	Local Government.	Local Government.
3. Degree of Connectivity	High. Connects to other Primary and Distributor roads.	High. Connects to Primary and/or other Distributor roads.	High. Connects to Primary and/or other Distributor roads.	High. Connects to Primary and/or other Distributor roads.	Medium. Minor Network Role Connects to Distributors and Access Roads.	Low. Provides mainly for property access.
4. Predominant Purpose	Movement of inter regional and/or cross town/city traffic, e.g. freeways, highways and main roads.	High capacity traffic movements between industrial, commercial and residential areas.	Reduced capacity but high traffic volumes travelling between industrial, commercial and residential areas.	Roads linking significant destinations and designed for efficient movement of people and goods between and within regions.	Movement of traffic within local areas and connect access roads to higher order Distributors.	Provision of vehicle access to abutting properties
Secondary Criteria						
5. Indicative Traffic Volume (AADT)	In accordance with Classification Assessment Guidelines.	Above 8 000 vpd	Above 6 000 vpd.	Greater than 100 vpd	Built Up Area - Maximum desirable volume 6 000 vpd. Non Built Up Area – up to 100 vpd.	Built Up Area - Maximum desirable volume 3 000 vpd. Non Built Up Area – up to 75 vpd.
6. Recommended Operating Speed	60 – 110 km/h (depending on design characteristics).	60 – 80 km/h.	60 – 70 km/h.	50 – 110 km/h (depending on design characteristics).	Built Up Area 50 - 60 km/h (desired speed) Non Built Up Area 60 – 110 km/h (depending on design characteristics).	Built Up Area 50 km/h (desired speed). Non Built Up Area 50 – 110 km/h (depending on design characteristics).
7. Heavy Vehicles permitted	Yes.	Yes.	Yes.	Yes.	Yes, but preferably only to service properties.	Only to service properties.
8. Intersection treatments	Controlled with appropriate measures e.g. high speed traffic management, signing, line marking, grade separation.	Controlled with appropriate measures e.g. traffic signals.	Controlled with appropriate Local Area Traffic Management.	Controlled with measures such as signing and line marking of intersections.	Controlled with minor Local Area Traffic Management or measures such as signing.	Self controlling with minor measures.
9. Frontage Access	None on Controlled Access Roads. On other routes, preferably none, but limited access is acceptable to service individual properties.	Prefer not to have residential access. Limited commercial access, generally via service roads.	Residential and commercial access due to its historic status Prefer to limit when and where possible.	Prefer not to have property access. Limited commercial access, generally via lesser roads.	Yes, for property and commercial access due to its historic status. Prefer to limit whenever possible. Side entry is preferred.	Yes.
10. Pedestrians	Preferably none. Crossing should be controlled where possible.	With positive measures for control and safety e.g. pedestrian signals.	With appropriate measures for control and safety e.g. median/islands refuges.	Measures for control and safety such as careful siteing of school bus stops and rest areas.	Yes, with minor safety measures where necessary.	Yes.
11. Buses	Yes.	Yes.	Yes.	Yes.	Yes.	If necessary (see Note 5)
12. On-Road Parking	No (emergency parking on shoulders only).	Generally no. Clearways where necessary.	Not preferred. Clearways where necessary.	No – emergency parking on shoulders – encourage parking in off road rest areas where possible.	Built Up Area – yes, where sufficient width and sight distance allow safe passing. Non Built Up Area – no. Emergency parking on shoulders.	Yes, where sufficient width and sight distance allow safe passing.
13. Signs & Linemarking	Centrelines, speed signs, guide and service signs to highway standard.	Centrelines, speed signs, guide and service signs.	Centrelines, speed signs, guide and service signs.	Centrelines, speed signs and guide signs.	Speed and guide signs.	Urban areas – generally not applicable. Rural areas - Guide signs.
14. Rest Areas/Parking Bays	In accordance with Main Roads' *Roadside Stopping Places Policy*.	Not Applicable.	Not Applicable.	Parking Bays/Rest Areas. Desired at 60km spacing.	Not Applicable.	Not Applicable.

Figure 9: Road types and criteria for Western Australia

Source: Main Roads Western Australia D10#10992

8 Public transport access

Information was collected from Transperth, PTA and site visits to assess the existing public transport access to and from the site.

Public transport accessibility is presently limited for the locality. The nearest bus service is route 254, which is over 1.5km walking distance from the site. The limited connectivity will make public transport less desirable in comparison to walking and cycling in the interim.

The Byford Rail Extension and Byford Rail Station are being planned as part of Metronet. Once the rail extension is constructed and the surrounding vacant lots are developed, the PTA will run extra feeder buses in the locality which will connect to the train station.

In the medium to long term, bus accessibility for the development is expected to be good.

9 Pedestrian access

Information from online mapping services, Main Roads WA, Local Government, and site visits was collected to assess the pedestrian access for the proposed development.

9.1 Pedestrian facilities and level of service

Footpaths are provided on Lawrence Way and Maive Street for walking and cycling access into the site. Pedestrian crossing facilities including kerb ramps are provided at nearby intersections which promotes improved access for bicycles, wheelchairs, and prams.

The WAPC Transport Impact Assessment Guidelines for Developments (2016) provide warrants for installing pedestrian priority crossing facilities. This is based on the volume of traffic as the key factor determining if pedestrians can safely cross a road. The guidelines recommend pedestrian priority crossing facilities be considered once the peak hour traffic exceeds the volumes detailed in Table 4.

The traffic volumes in this table are based on a maximum delay of 45 seconds for pedestrians, equivalent to Level of Service E. The pedestrian crossing facilities on adjacent roads near the site are sufficient and within the traffic volume thresholds.

Table 4: Traffic volume thresholds for pedestrian crossings

Road cross-section	Maximum traffic volumes providing safe pedestrian gap
2-lane undivided	1,100 vehicles per hour
2-lane divided (with refuge)	2,800 vehicles per hour
4-lane undivided*	700 vehicles per hour
4-lane divided (with refuge)*	1,600 vehicles per hour

10 Bicycle access

Information from online mapping services, Department of Transport, Local Government, and/or site visits was collected to assess bicycle access for the proposed development.

10.1 Bicycle network

The Department of Transport Perth Bicycle Network Map (see Figure 10) shows the existing cyclist connectivity to the subject site. There is currently limited infrastructure for cycling. People may cycle on road and less confident people may legally cycle on footpaths in Western Australia. The cycling network is expected to be further developed over time as the surrounding vacant lots are developed and the Byford Rail Extension is constructed.

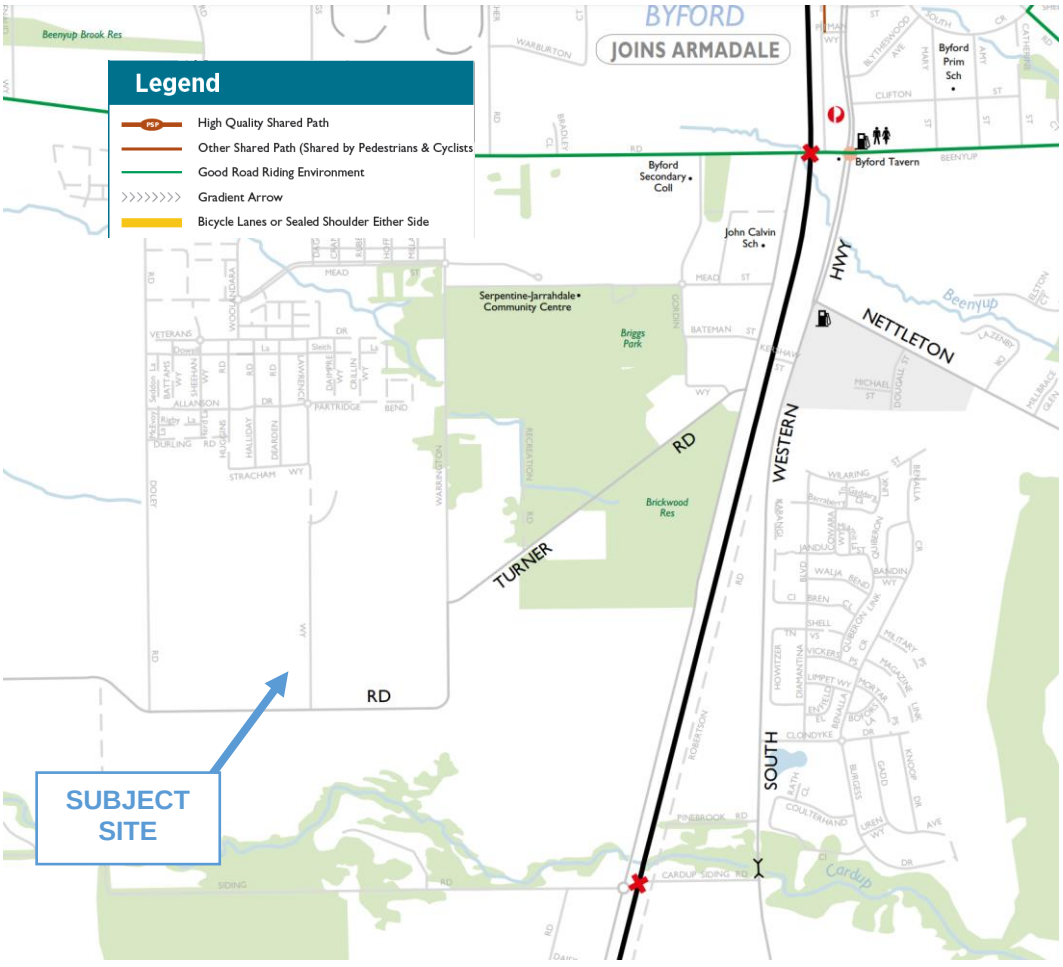


Figure 10: Perth bicycle network plan

10.2 Bicycle parking and end of trip facilities

Parking for six bicycles will be provided as part of the proposed development. End of trip facilities including a shower, change room and lockers are provided to encourage active transport for staff.

11 Site specific issues

No additional site-specific issues were identified within the scope of this assessment.

12 Safety issues

The five-year crash history in the vicinity of the site was obtained from Main Roads WA. As detailed in Figure 11, no crashes were recorded in the locality in the last five years.

The low traffic generation of the proposed development is unlikely to impact traffic safety in the area.

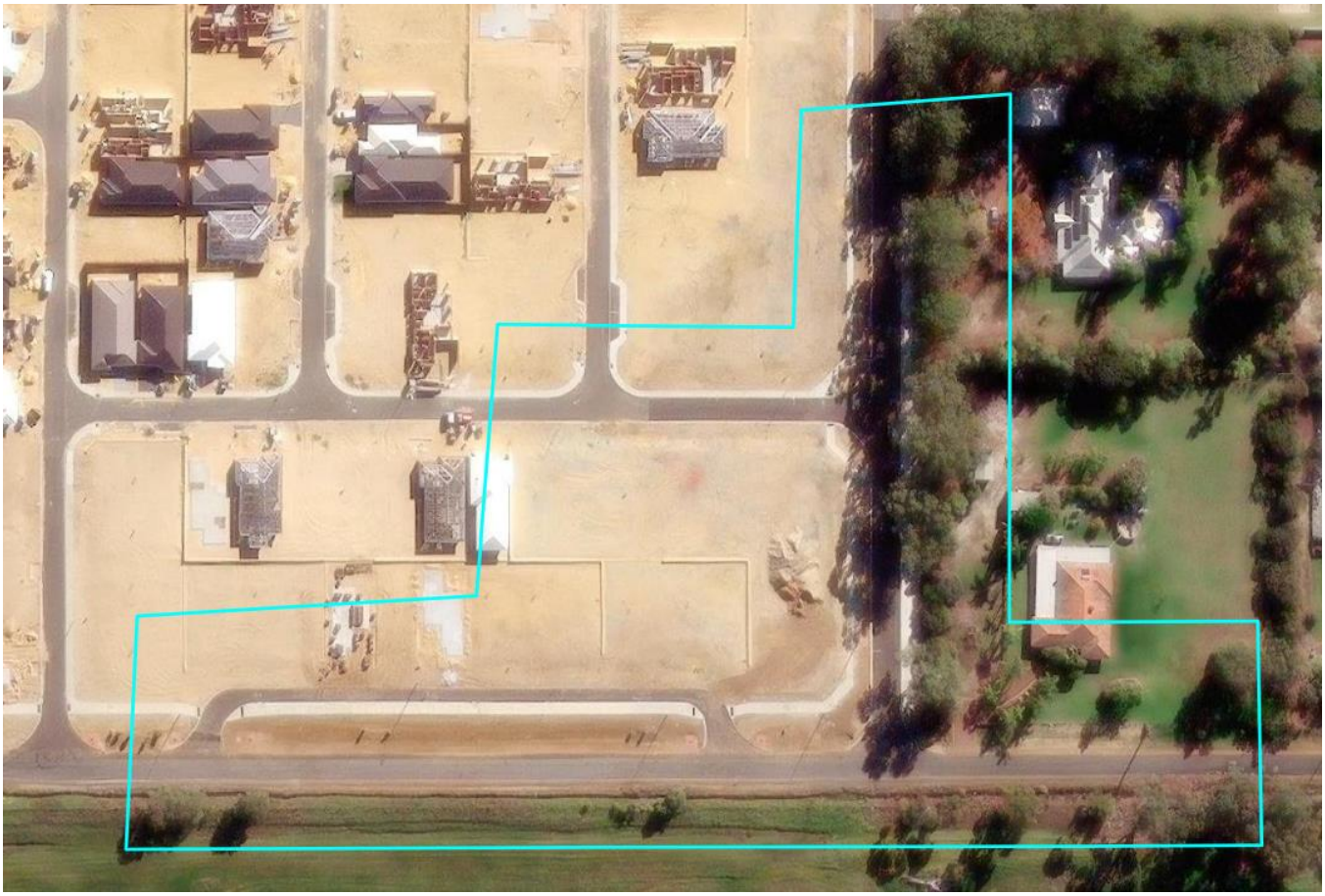


Figure 11: 5-year crash map in the locality (2018-2022)

Source: MRWA crash mapping tool

13 Conclusion

This Transport Impact Statement has been prepared by Urbii on behalf of Planning Solutions with regards to the proposed child care centre, located at Lot 631 (108) Lawrence Way, Byford.

The subject site is situated on the north-west corner of Lawrence Way and Orton Road, as shown in Figure 1. The site is presently vacant and is surrounded by mostly vacant residential land, which is under development. Beenyup Primary School is located nearby to the north.

It is proposed to develop the site into a child care centre catering for up to 96 children and around 16 staff.

The site features good connectivity with the existing road and walking network. There is limited accessibility for cycling and public transport. Infrastructure for these transport modes is expected to improve as vacant lots are developed and the Byford Rail Extension is constructed with feeder bus services.

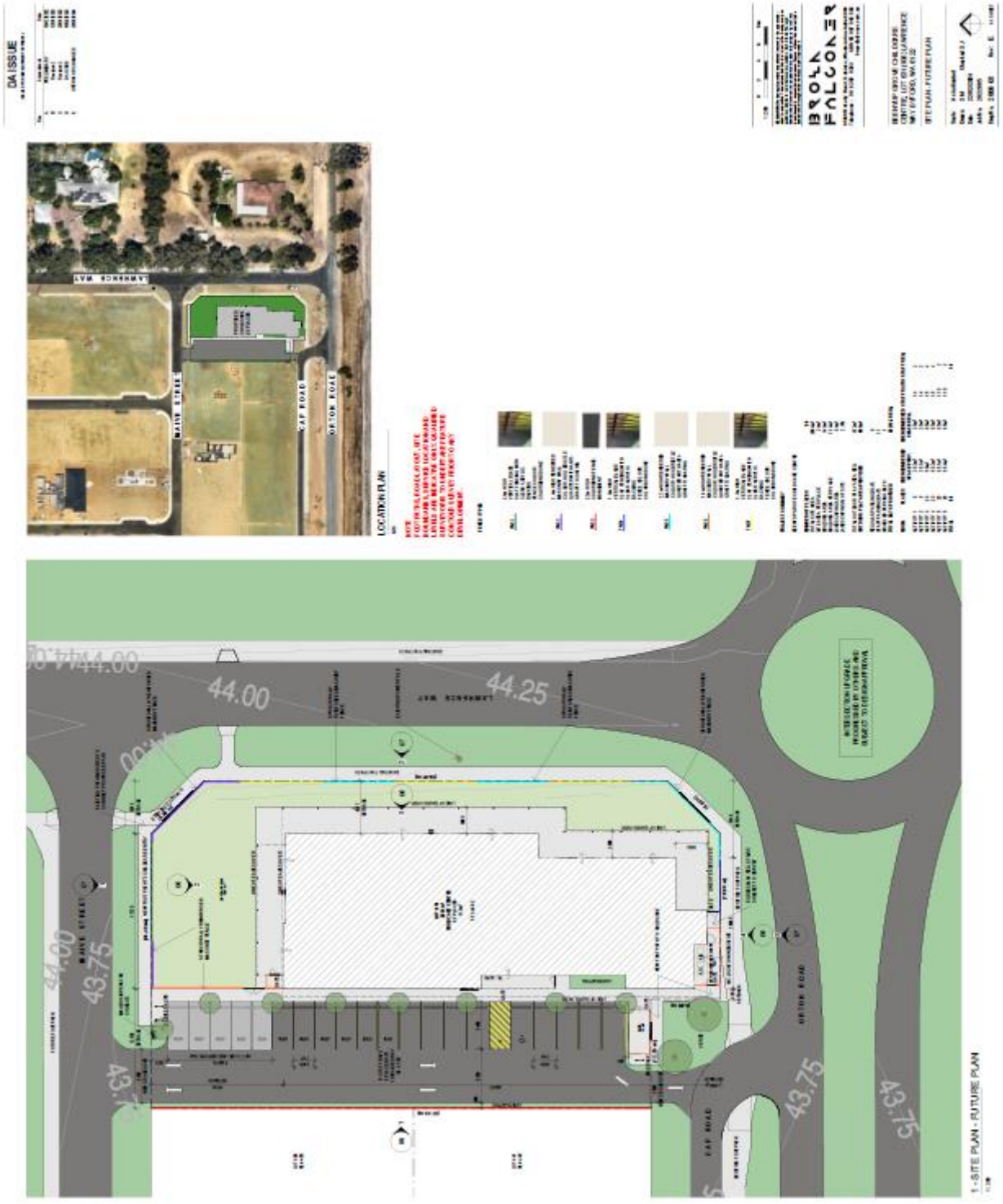
The traffic analysis undertaken in this report shows that the traffic generation of the proposed development is minimal (less than 100vph on any lane) and as such would have insignificant impact on the surrounding road network.

The proposed car parking provision can accommodate the needs of the child care centre.

It is concluded that the findings of this Transport Impact Statement are supportive of the proposed development.

Appendices

Appendix A: Proposed development plans



Appendix B: Swept path diagrams

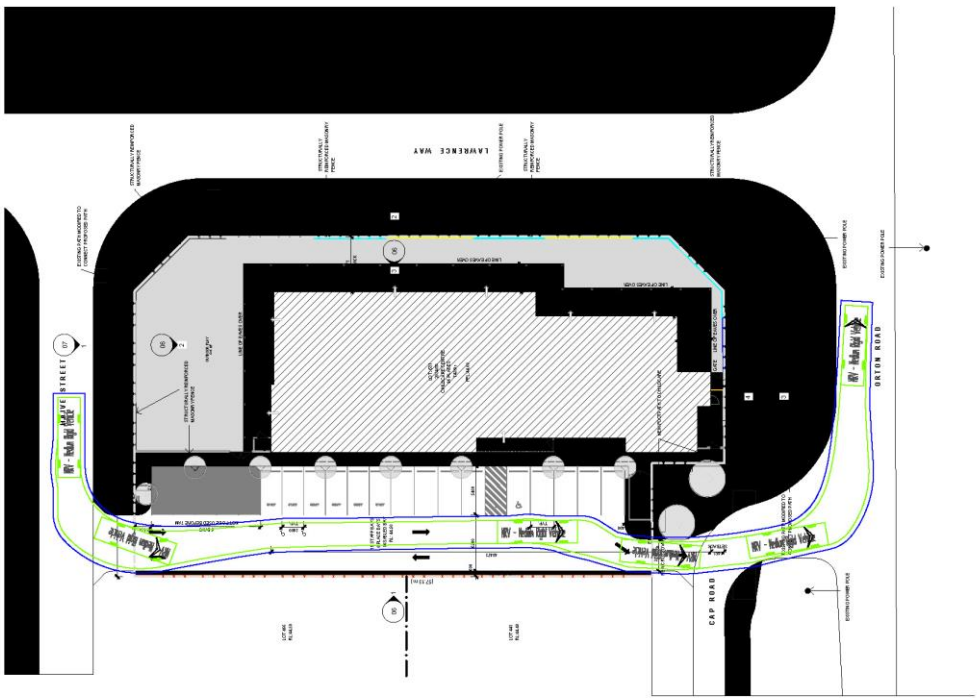
Swept path diagrams are included in this section of the report. Different coloured lines are employed to represent the various envelopes of the vehicle swept path, as described below:

Cyan represents the wheel path of the vehicle

Green represents the vehicle body envelope

Blue represents a 500mm safety buffer line, offset from the vehicle swept path

The swept path diagrams are also provided separately in high-quality, A3 PDF format.



urbii
Sustainable Transport. Safe Solutions
PO Box 4315, Ballina WA 6171
0438868164

Date: 05/03/2024
Scale @ A3: 1:500
Revision: sk01a

Project: U22.128 - Lot 9028 Orton Road, Byford
Proposed Child Care Centre

Drawing Title: Truck entry, circulation and exit
AS2890.2 - 8.8m Medium Rigid Vehicle (MRV)

Drawn by: Paul Ghantous

Client: Planning Solutions

Revision notes:

Rev:	Date:	Notes:
1	14/03/2023	Dark blue line represents a 500mm buffer

REVERBERATE
CONSULTING

Beenyup Grove Childcare Centre,
Environmental Noise Emission Report

Reference: P191218RP1

Beenyup Grove Childcare Centre
Environmental Noise Emission
P191218RP1

REVERBERATE
CONSULTING

Document Information

Project	Beenyup Grove Childcare Centre	
Client	Forest Cave Beach Unit Trust	
Report title	Environmental Noise Emission	
Project Number	P191218	
Author	Martti Warpenius Director p+61 8 9468 7888 m+61 414 394 220 martti@reverberate.consulting	

Revision Table

Report revision	Date	Comments
0	24 February, 2023	Draft Issued to client
1	11 March, 2024	Updated site layout
2	13 March 2024	Finalised

Glossary

A-weighting	A spectrum adaption that is applied to measured noise levels to represent human hearing. A-weighted levels are used as human hearing does not respond equally at all frequencies.
dB	Decibel—a unit of measurement used to express sound level. It is based on a logarithmic scale which means a sound that is 3 dB higher has twice as much energy. We typically perceive a 10 dB increase in sound as a doubling of that sound level.
Frequency (Hz)	The number of times a vibrating object oscillates (moves back and forth) in one second. Fast movements produce high frequency sound (high pitch/tone), but slow movements mean the frequency (pitch/tone) is low. 1 Hz is equal to 1 cycle per second.
L_{90}	Noise level exceeded for 90 % of the measurement time. The L_{90} level is commonly referred to as the background noise level.
L_{10}	Noise level exceeded for 10 % of the measurement time. The L_{10} level represents the typical upper noise level and is often used to represent traffic or industrial noise emission.
$L_{A10,adj}$	Adjusted L_{A10}. Adjustment based on obvious tonality, impulsive or Modulation characteristics in the audible noise at a receiver point. Based on the adjustment methodology in Environmental Protection (Noise) Regulations 1997 Regulation 9
$L_{A1,adj}$	Adjusted, A-weighted noise level exceeded for 1 % of the measurement time. The $L_{A1,\ adj}$ level represents mostly short duration, high level sound events.
$L_{Amax,adj}$	Adjusted, A-weighted maximum instantaneous noise level.
L_{Aeq}	A-weighted Equivalent Noise Level—Energy averaged noise level over the measurement time.
R_w	Weighted Sound Reduction Index—A laboratory measured value of the acoustic separation provided by a single building element (such as a partition). The higher the R_w the better the noise isolation provided by a building element.
$R_w + C_{tr}$	A measure of the sound insulation performance of a building element with a C_{tr} spectrum adaptation term placing greater emphasis on the low frequency performance.
Reverberation Time (RT)	Of a room, for a sound of a given frequency or frequency band, the time that would be required for the reverberantly decaying sound pressure level in the room to decrease by 60 decibels.

Table of Contents

1. Executive Summary

Reverberate Consulting has been commissioned by Forest Cave Beach Pty Ltd as trustee of the Forest Cave Beach Unit Trust, to provide acoustic advice relating to the proposed Beenyup Grove Childcare Centre at 108 Lawrence Way, Byford. This report is based on the Brown Falconer drawing 2809 02, Revision E, dated 22 February 2024 (refer site plan Appendix C). The proposed operating hours of the centre are between 6:30 am and 6:30 pm Monday to Friday, with no outdoor play before 7:00 am.

The main acoustical issues covered are the environmental noise emission from the site, as received at current and future adjacent residential properties along Maive St, Lawrence Way and along Orton St from:

- outdoor play areas (after 7:00 am)
- mechanical plant (before 7:00 am)
- carpark activity (before 7:00 am)

It is found that noise barriers as shown in Appendix C, and the noise control measures in Appendix A are recommended to control noise emission from the site

This report details the results of the acoustic assessment.

2. Site and Surrounds

The proposed childcare centre is located on a parcel of land bounded by Lawrence Way, Maive St, and Orton Road, refer to the Site Plan Figure 1.

The dominant noisy activity for the site is caused by the following noise sources:

- Parent vehicle movements in the carpark (6.30 am – 6.30 pm)
- Mechanical plant and equipment (6.30 am – 6.30 pm)
- Child Care centre children playing outdoors (7.00 am to 6.30 pm)
    - 16 x 0-2 year olds
    - 40 x 2-3 year olds
    - 40 x 3-5 year olds

The site is adjoining residentially zoned land on the west, with additional residential areas on the other three sides, separated by roads.

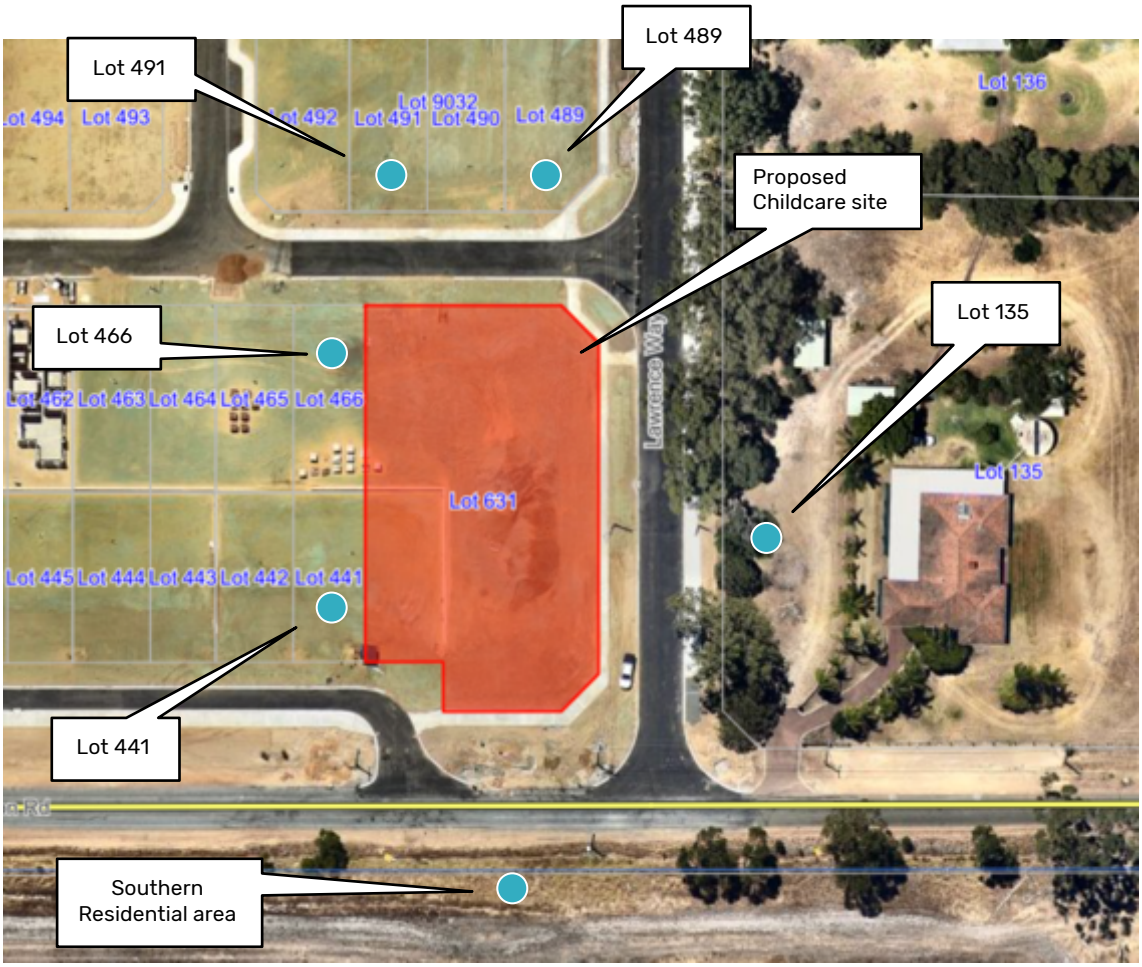


Figure 1: Childcare Site Plan

3. Noise Assessment Criteria

3.1 Environmental Protection Act

The Environmental Protection Act (1986) provides for the prevention, control and abatement of pollution and environmental harm. This Act limits environmental noise in Section 3 (3) as follows:

For the purposes of this Act, noise is taken to be unreasonable if –

> *(a) it is emitted, or the equipment emitting it is used, in contravention of —*
> *(i) this Act; or*
> *(ii) any subsidiary legislation made under this Act; or*
> *(iii) any requirement or permission (by whatever name called) made or given by or under this Act;*
> *or*
>
> *(b) having regard to the nature and duration of the noise emissions, the frequency of similar noise emissions from the same source (or a source under the control of the same person or persons) and the time of day at which the noise is emitted, the noise unreasonably interferes with the health, welfare, convenience, comfort or amenity of any person; or*
>
> *(c) it is prescribed to be unreasonable for the purposes of this Act.*

Reverberate has used the above legislation to assess the noise impact from the site. More particularly, noises which have a distinct character, and are different to the ambient noise environment are assessed under the subsidiary legislation; the Environmental Protection (Noise) Regulations 1997. Such an assessment has been undertaken for noise sources such as child noise in outdoor areas and vehicle door noise in carparks.

Other types of noises from the site, such as that generated by vehicles driving, or manoeuvring in the carpark, have not been assessed under the Regulation. Reference is drawn to Section 3 (3) (b) of the Act which requires the assessment to have regard to the nature, duration, and time of day of such noise emissions and the frequency of similar noise emissions from the same source. It is noted that the adjoining roads contain more traffic than accesses the study site so the movement of vehicles on child care site, per se, is not considered characteristically different to that already in the area.

3.2 Environmental Protection (Noise) Regulations 1997

The Environmental Protection (Noise) Regulations 1997 (the Regulations) provide limits for acceptable noise from operations and activities. The Regulations specify the maximum permissible noise levels (termed Assigned Levels) at noise sensitive premises, caused by excessive nearby noise, during various times of the day.

The Assigned Levels have been calculated for all properties using the method shown in Appendix B. The resultant Assigned Levels are presented below in Table 1 and are applicable at the adjoining neighbouring residential sites.

Due to the proposed hours of operation of the outdoor play area, the day-time period is the critical assessment period. The only exception is for carpark and mechanical plant activity prior to 7:00 am.

Table 1: Environmental noise emission criteria (Assigned Levels)

Receiving Premises	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise Sensitive Premises - Highly Sensitive	0700 to 1900 hours Monday to Saturday	45	55	65
	0900 to 1900 hours Sunday and public holidays	40	50	60
	1900 to 2200 hours all days	40	50	55
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35	45	55

These criteria are applicable to the dominant noises as follows:

- child noise (daytime L_{A10} assigned level 45 dB),
- mechanical services noise (night-time L_{A10} assigned level of 35 dB) and
- carpark activity such as vehicle door closing (night-time L_{Amax} assigned level of 55 dB).

Note that adjustments are applied to the noise sources for a variety of characteristics. Where tonality, impulsiveness or modulation is present at the nearest neighbours then these noises are additionally adjusted where the characteristics cannot be removed from the noise signature.

It is expected that the sound of the vehicle door closing would be perceived as impulsive at the nearest neighbours and so would attract a 10 dB adjustment. Likewise, the sound of the mechanical services plant could be perceived as tonal and would attract a 5 dB adjustment during potentially quiet, pre-7:00 am periods.

4. Noise Assessment

4.1 Noise sources modelled

Noise emission sources and ground contours were used to develop a 3-D SoundPLAN noise model as shown below in Figure 2. This figure shows the locations of the modelled noise sources, noise barriers, and site & surrounding buildings.

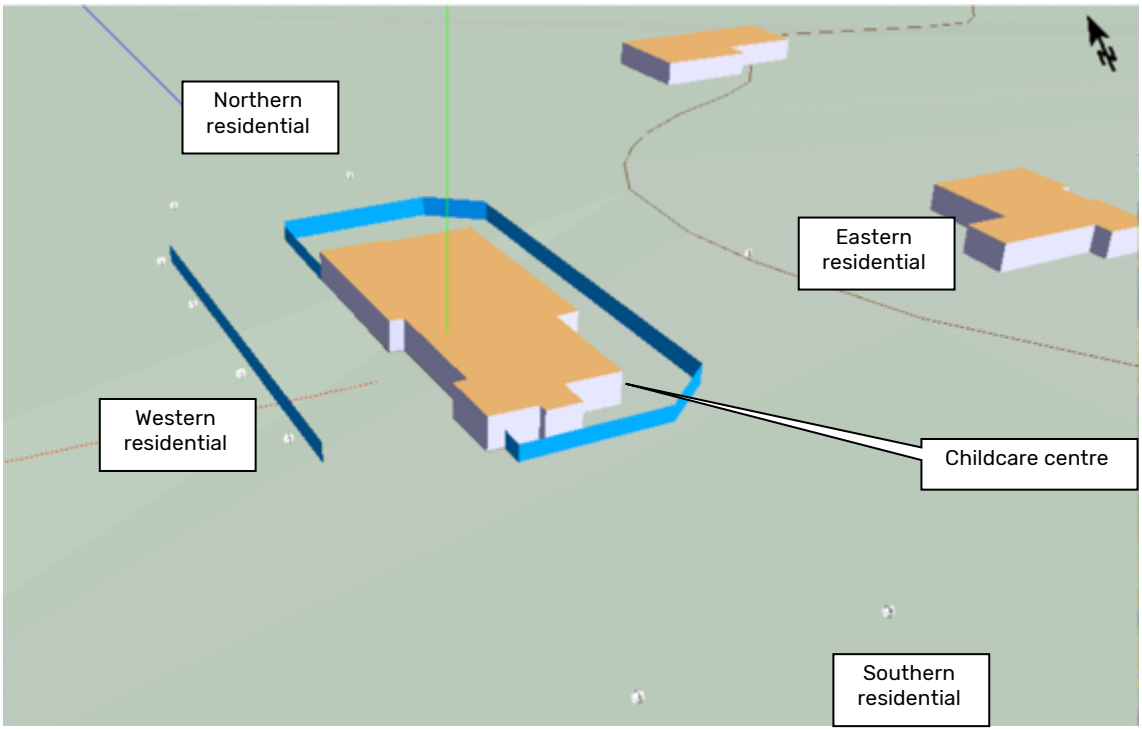


Figure 2 – 3-D SoundPLAN model of childcare centre and Receptor locations

The Childcare Centre has been modelled with the following noise sources:

- Outdoor play area:
  - 16 x 0-2 year olds
  - 40 x 2-3 year olds
  - 40 x 3-5 year olds
- Outdoor mechanical plant
- Car park noise (controlled by door close noise)

The noise emissions per group of children are based on our previous experience, and that of the Association of Australasian Acoustical Consultants [AAAC][1], and are summarised in Table 2 below.

[1] *Guideline for Childcare Centre Acoustic Assessment*, Version 3.0, dated September 2020

Table 2 – L_{A10} Sound Power Levels – children outside

Per Group of children	Sound Power Level (dB) Reverberate
10 children (3-5 yo)	86
10 children (2-3 yo)	84
10 children (0-2 yo)	77

The total L_{A10} noise emission from all outdoor air-conditioning units together was 76 dB.

The noise emission from carparking was considered with the sound power level of car door closing being L_{wAmax} = 84 dB. Other vehicular sounds such as engine starting noises and maneuvering within the carpark are quieter than that for door closing. Where car door noise is shown to meet the Regulations, these other noises will also be compliant.

4.2 Noise Forecast and Impact

Computer noise modelling was used to forecast the noise impacts to locations around the site. The software used was SoundPLAN Version 8.2, with the ISO9613 algorithms selected. These algorithms have been used as they allow for the influence of wind, atmospheric stability, barriers, building shielding and ground absorption. It is appropriate for the current configuration of noise sources and receiver locations.

The Input data used in modelling includes

- Meteorological Information;
- Topographical data;
- Buildings, barriers, fences, and other features which may shield noise
- Ground Absorption; and
- Source sound levels.

The following parameters were used as necessary in modelling noise emissions

- Pasquil Stability Factor F
- Temperature 15 ^{0}C (pre-7:00 am)
- Temperature 20 ^{0}C (post-7:00 am)
- Wind Speed 3 m/s
- Wind Direction Worst case – i.e., all directions
- Relative Humidity 50%
- Ground Absorption 0.65 in grassed areas
- 0.10 for paved areas such as roads and carparks

Adjustments were applied for the forecast noise reaching receptor locations. Where evident at the receiving locations, the following adjustments were applied:

- +10 dB where the received noise was determined to have impulsive characteristics
- +5 dB where the received noise was determined to have tonal characteristics

The forecast noise levels at sensitive receivers are summarised in Table 3 to Table 5 below. These forecasts are based on the maximum Sound Power Levels in Section 4.1 above, as well as the successful implementation of the Noise Management Plan in Appendix A.

The corresponding forecast noise levels at the sensitive receiver lots are also shown in noise contour plots Figure 3 to Figure 5

Table 3 - Forecast $L_{A10,\,adj}$ daytime noise emission levels

	Receiver					
	Lot 441	Lot 466	Lot 489	Lot 491	Eastern Lots	Southern Lot
Noise Source	Grnd Fl	Grnd Fl	Grnd Fl	Grnd Fl	Grnd Fl	Grnd Fl
Child noise	36	40	45	45	45	41
Mechanical noise*	24	16	12	13	23	34
Overall	36	40	45	45	45	41
Assigned Level	45	45	45	45	45	45
Compliance	**Achieved**	**Achieved**	**Achieved**	**Achieved**	**Achieved**	**Achieved**

Note * Tonality adjustment applied

Table 4 - Forecast $L_{A10,\,adj}$ night time noise emission levels

	Receiver					
	Lot 441	Lot 466	Lot 489	Lot 491	Eastern Lots	Southern Lot
Noise Source	Grnd Fl	Grnd Fl	Grnd Fl	Grnd Fl	Grnd Fl	Grnd Fl
AC1*	19	11	7	9	18	29
AC2*	20	11	7	8	18	30
AC3*	19	11	7	8	18	30
Overall*	**24**	**16**	**12**	**13**	**23**	**34**
Assigned Level	35	35	35	35	35	35
Compliance	**Achieved**	**Achieved**	**Achieved**	**Achieved**	**Achieved**	**Achieved**

Note * Tonality adjustment applied

Table 5 - Forecast $L_{Amax, adj}$ night-time noise emission levels

	Receiver					
	Lot 441	Lot 466	Lot 489	Lot 491	Eastern Lots	Southern Lot
Noise Source	Grnd Fl	Grnd Fl	Grnd Fl	Grnd Fl	Grnd Fl	Grnd Fl
Car 4**	48	51	50	**57**	35	44
Car 5**	49	52	48	**56**	32	44
Car 6**	49	53	48	55	32	44
Car 7**	50	53	46	55	32	44
Car 10**	51	52	45	53	30	45
Car 14**	52	50	39	52	30	47
Car 15**	52	49	37	51	30	48
Car 17**	52	47	36	51	30	48
Car 18**	52	48	36	50	30	49
Car 19**	52	47	34	50	30	49
Car 20**	52	47	33	50	30	50
Assigned Level	55	55	55	55	55	55
Compliance	**Achieved**	**Achieved**	**Achieved**	**No**	**Achieved**	**Achieved**

Note * Tonality adjustment applied

** Impulsive adjustment applied

Figure 3: Daytime environmental noise emission prediction (L_{A10}) at 1.4 m above ground level
(Assigned Level = 45 dB)

Figure 4: Night-time environmental noise emission prediction ($L_{A10,adj}$) at 1.4 m above ground level
(Assigned Level = 35 dB)

Figure 5: Night-time Environmental noise emission prediction (L_{Amax}) at 1.4 m above ground level
(Assigned Level = 55 dB)

5. Discussion

The results in Section 4.2 show that the overall noise emission levels comply with the Assigned Levels as developed from the Environmental Protection (Noise) Regulations 1997.

The only exception is for carparking in bays #1 to #5 pre-7:00 am.

The noise control measured outlined in Appendices A, C & D are recommended to control noise emissions.

The modelling has used conservative assumptions to determine the forecast noise levels. These assumptions include:

- all mechanical plant, and all children together, are simultaneously making noise, and at full noise emission as noted
- Noise Regulation adjustments are needed for all items as proposed

We consider that these assumptions are conservative, and that it unlikely that these will actually occur. Where the assumptions do not hold, the overall noise emission from the site will reduce to levels below that shown in Section 4.2.

It is noted that the noise control measures recommended in this report will produce sufficient noise control to meet the Environmental Protection (Noise) Regulations 1997 requirements, for the noise sources as outlined. Where it is proposed to install plant or equipment with different noise emission to that identified in this report, we recommend that a detailed noise assessment is conducted at that stage.

Based on the noise sources, arrangement, and the conservative assumptions outlined in this report, the overall noise emission from the site is considered acceptable throughout the night-time operating period (i.e., before 7:00 am) and throughout the day.

6. Conclusion

An assessment of environmental noise emission from the proposed Childcare Centre development has been undertaken.

The forecast noise emission levels have been presented. The recommended treatments to control noise emissions are outlined in the Noise Management Plan (Appendix A) and these treatments have been shown to control environmental noise emission from the site so that compliance is achieved with the Environmental Protection Act (1986) and Environmental Protection (Noise) Regulations 1997.

Any noise sources currently not covered in this report, where emergent on site, may need to be managed and controlled to minimise as far as practicable. In the event that such noises create a noticeable impact, an additional assessment and noise controls may be required at that time.

On the basis of the assessed noise sources, forecast noise emissions and recommended treatments, the environmental noise emission from the site is considered acceptable and we recommend approval for the proposed Childcare Centre.

Appendix A: Noise Management Plan

The elements outlined below are recommended as part of a comprehensive Noise Management Plan. They are recommended for compliance with the Environmental Protection Act 1986 and its subsidiary legislation: The Environmental Protection (Noise) Regulations 1997.

Noise Source or Activity	Requirement/Treatments[2]
Barriers	• Noise control barriers are recommended with the minimum heights shown in Appendix C. • These barriers are to be gap free along their lengths unless otherwise indicated • The minimum construction of barriers up to 1.8m high to be 0.42 mm BMT Colorbond, (or masonry), and taller barriers to be a minimum of 90 mm masonry, or other material with a minimum mass 8.5 kg/m2
Refuse Collection	• Refuse collection is to be carried out in the quietest reasonable and practicable manner • Equipment used for refuse collection is the quietest reasonably available • Collection to occur between 7:00 am and 700:pm Mon-Saturday, unless the contractor has a Noise Management Plan approved by Council.
Child Noise	• Children not permitted in the outdoor play areas before 7:00 am • Noisy activities such as musical instruments, parties, singing, etc to be conducted indoors with the doors and windows closed. • A contact phone number for the Centre's director should be made available to neighbours to facilitate communication and to resolve any neighbourhood issues that may arise due to operation of the Centre.
Outdoor Building Services plant	• The total L_{wA10} noise emission from all outdoor plant not to exceed that outlined in Section 4.1 above, without additional treatment. • A full review is to be conducted of plant noise after final selections and locations have been finalised

[2] The treatments outlined in this report are the minimum requirements for noise control. Increased thicknesses, heights, strengthened elements, or alternative treatments, may be required for other non-acoustic reasons including wind loading, weather proofing, buildability, structural stability, safety, or fire-rating

Carpark	• All new grilles or storm water grates in the carpark are to be installed to be tight fitting. Where there is a potential for vehicles to drive over such grates/covers, noise from loose fitting grates is to be avoided. Where there is the potential for such noise source, hard rubber or other durable materials are to be used for cushioning such grates/covers • Parents and guardians should be informed of the importance of noise minimisation when entering the site, dropping off or picking up children • Carparking bays not permitted for use prior to 7:00 am are identified in Appendix D
Outdoor Play equipment	• Outdoor climbing frames to be positioned behind the tallest barriers on site

Appendix B: Determination of Assigned Level

The Environmental Protection (Noise) Regulations 1997 (EPR) provide limits for acceptable noise from operations generating excessive noise. The Regulations specify the maximum permissible noise levels (termed assigned levels) at noise sensitive premises, caused by surrounding noises, during various times of the day. Time of day affects the assigned levels for noise-sensitive premises, as follows –

- Lowest levels at night (10:00 pm to 7:00 am any day, or to 9:00 am Sundays and Public Holidays);
- Higher levels during the evenings (7:00 pm to 10:00 pm) and on Sundays and Public Holidays (9:00 am to 10:00 pm); and
- Highest levels during the day (7:00 am to 7:00 pm Monday to Saturday).

The baseline assigned levels from the Regulations are shown below in Table 6.

Table 6 – Baseline Assigned Levels

Receiving Premises	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise Sensitive Premises - Highly Sensitive	0700 to 1900 hours Monday to Saturday	45+IF	55+IF	65+IF
	0900 to 1900 hours Sunday and public holidays	40+IF	50+IF	65+IF
	1900 to 2200 hours all days	40+IF	50+IF	55+IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35+IF	45+IF	55+IF
Noise Sensitive Premises – any area other than highly sensitive area	All hours	60	75	80
Commercial	All hours	60	75	80
Industrial	All hours	65	80	90

The Assigned Levels above are then increased using an Influencing Factor (IF) as defined in the Regulations. The Influencing Factor is greater than zero where there are significant areas of land uses, within 100 m and 450 m radii of the receptor, including:

- industrial land use zonings;
- commercial zonings; and
- the presence of roads carrying significant traffic.

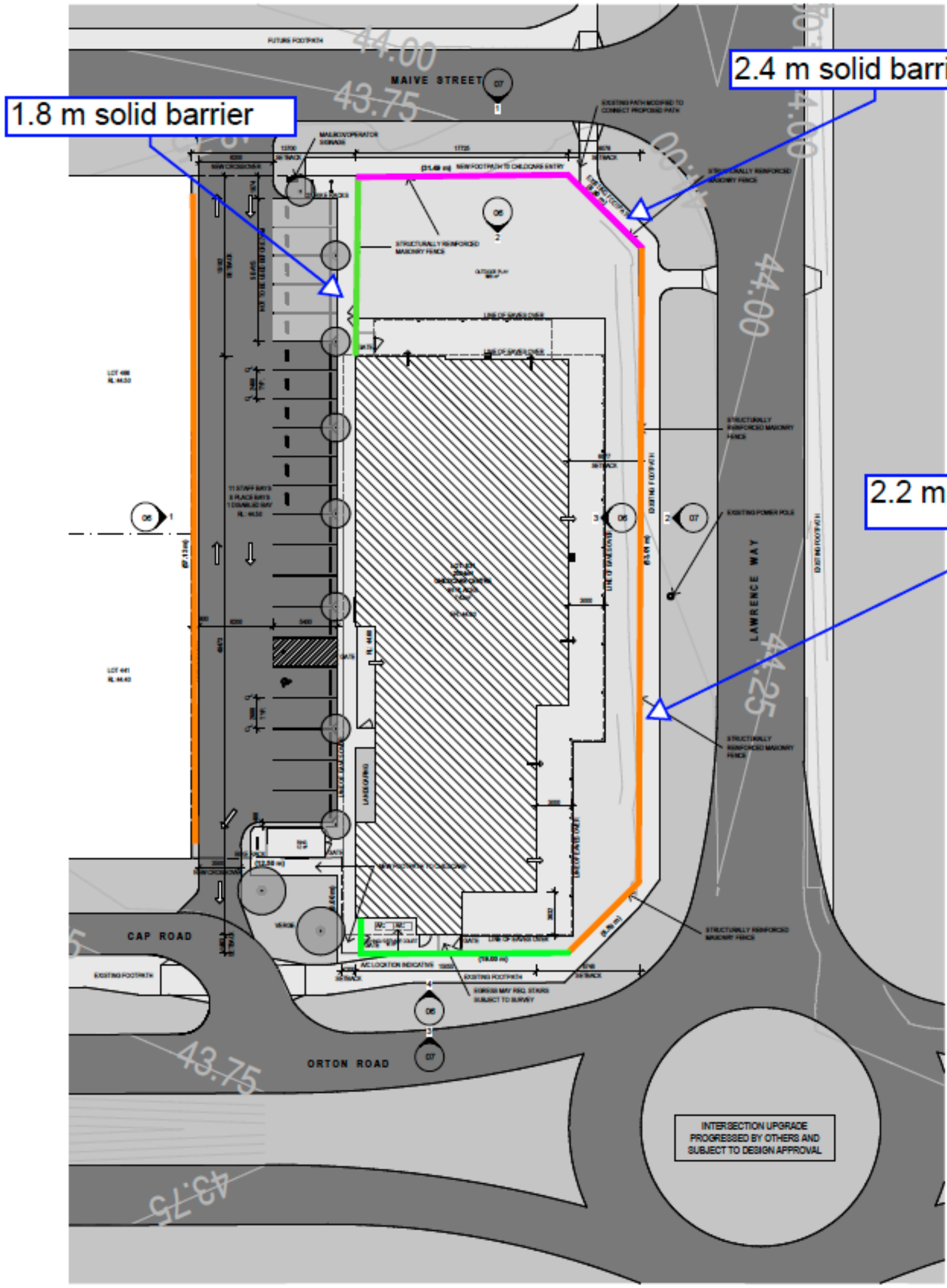
The Influencing Factor IF has been calculated for the applicable noise sensitive receptors in the current study. The percentage of industrial and commercial land within the prescribed circles centred on the noise sensitive premises, and the presence of roads with more than 6000 vehicles per day have been assessed for the properties.

Example Influencing Factor calculations are shown below. These factors are based on the land zonings established for the surrounding areas, and have been added to the baseline Assigned Levels to produce the final Assigned Levels in Section 3.2 above

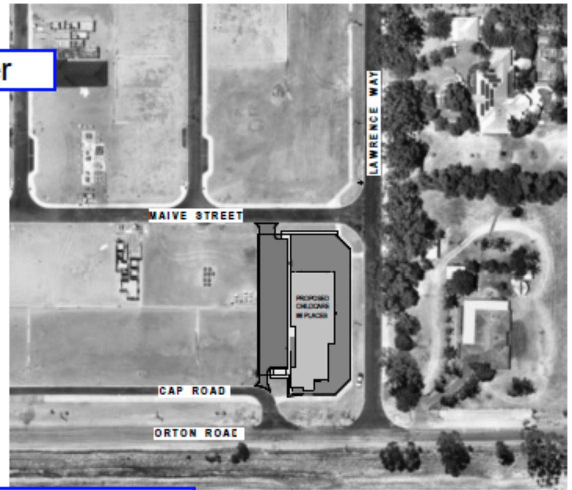
Property = #1367 Orton Rd.

Type of Land	450m Radius	100m radius	Total	
Industrial Land	0.0%	0.0%	0.00	dB
Commercial Land	0.0%	0.0%	0.00	dB
Transportation Factor			0	dB
TOTAL Influencing Factor			**0**	**dB**

Appendix C: Site Layout & treatments



1 - SITE PLAN - FUTURE PLAN



DA ISSUE

FOOTPATHS, ROAD LAYOUT, SITE BOUNDARIES, SERVICE LOCATION AND LEVELS ARE INDICATIVE ONLY. QUALIFIED SURVEYOR IS TO UNDERTAKE FEATURE CONTOUR SURVEY PRIOR TO ANY DEVELOPMENT.

1:200

BROWN FALCONER

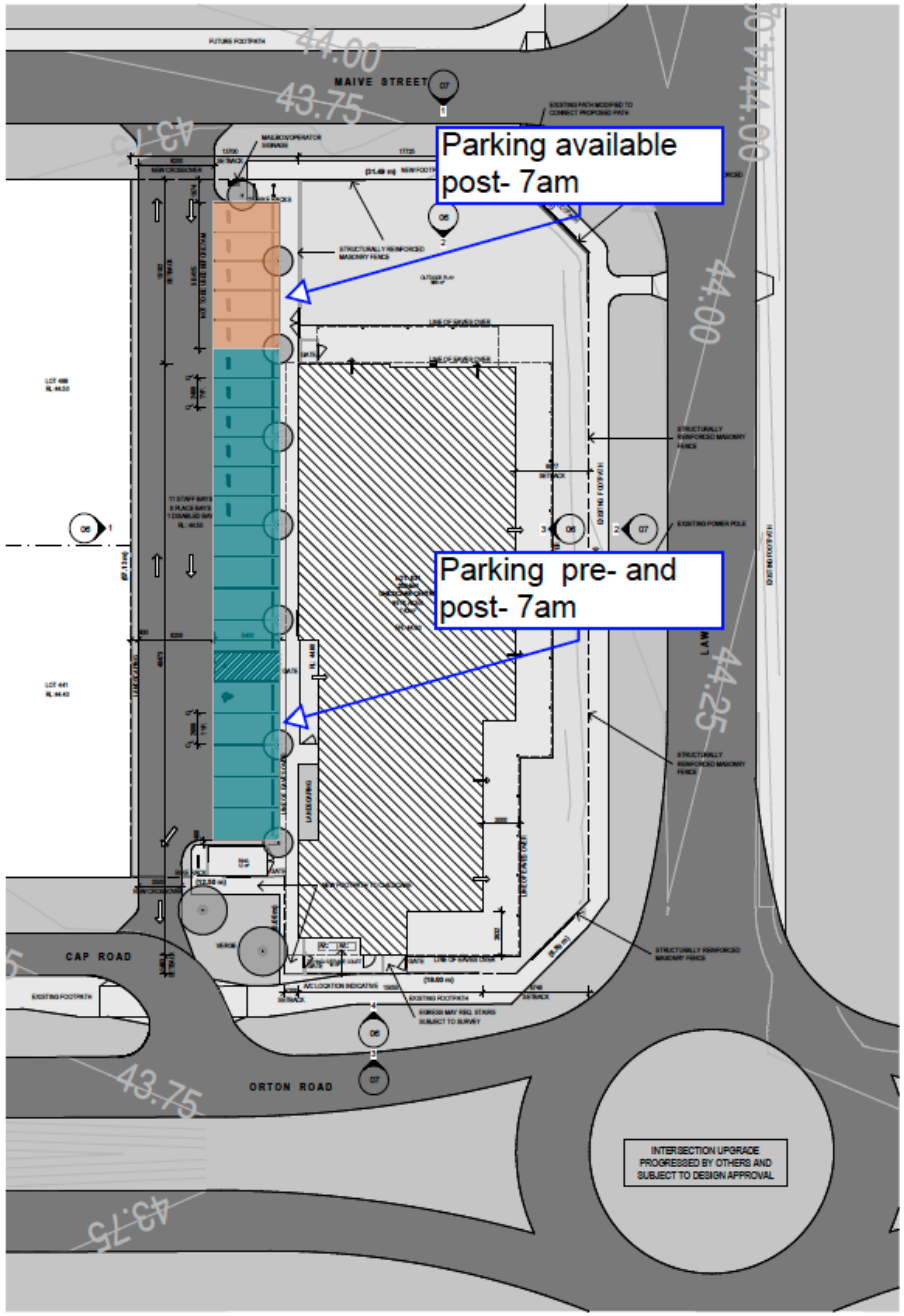
ACCORD

BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

SITE PLAN - FUTURE PLAN

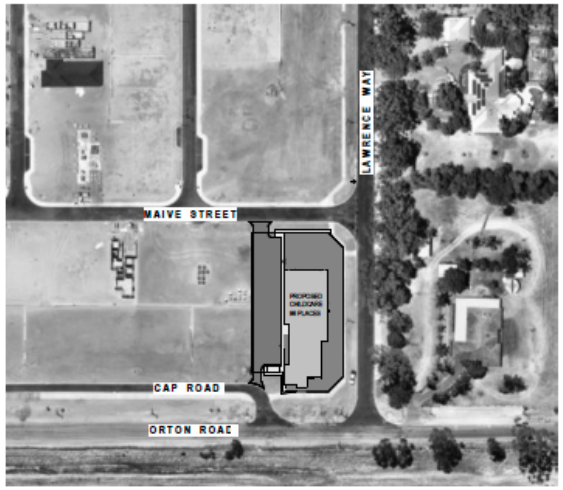
Scale As indicated
Drawn SM Checked SJ
Date 22/02/2024
Job No. 2022065
Dwg No. 2809 03 Rev: E

Appendix D: Carparking Availability



1 - SITE PLAN - FUTURE PLAN

1 : 200



LOCATION PLAN

NTS

NOTE
FOOTPATHS, ROAD LAYOUT, SITE BOUNDARIES, SERVICE LOCATION AND LEVELS ARE INDICATIVE ONLY. QUALIFIED SURVEYOR IS TO UNDERTAKE FEATURE CONTOUR SURVEY PRIOR TO ANY DEVELOPMENT.

FENCE TYPES


PROJECT SUMMARY

BEENYUP GROVE CHILD CARE CENTRE

NUMBER OF PLACES	88
TOTAL SITE AREA	2264m²
SITE AREA PER PLACE	24m²
BUILDING AREA	742m²
BUILDING AREA PER PLACE	7.74m²
LANDSCAPING AREA	946m²
LANDSCAPING % OF SITE	2.8%
TOTAL OUTDOOR PLAY AREA REQ	672m²
OUTDOOR PLAY AREA PROVIDED	953m²
REGULAR PARKING BAYS	8
STAFF PARKING BAYS	11
DISABLED PARKING BAYS	1
TOTAL BAYS PROVIDED	20(19.2 REQ.)

ROOM	PLACES	UNENCUMBERED SPACE PROV.	UNENCUMBERED SPACE REQ.	STAFF RATIO	STAFF REQ.
ACTIVITY 1	8	28.3m²	28m²	1:4	2
ACTIVITY 2	8	28.1m²	28m²	1:4	2
ACTIVITY 3	20	68m²	65m²	1:5	4
ACTIVITY 4	20	65.2m²	65m²	1:5	4
ACTIVITY 5	30	65.1m²	65m²	1:10	3
ACTIVITY 6	30	65.4m²	65m²	1:10	3
TOTAL	88				18

DA ISSUE

ISSUED FOR DEVELOPMENT APPROVAL

No.	Amendment	Date
A	PRELIMINARY	19/12/2023
B	Revision 2	13/01/2023
C	Revision 3	25/01/2023
D	DA ISSUE	19/02/2023
E	OPERATOR CHANGED	22/02/2024

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ACCORD

BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

SITE PLAN - FUTURE PLAN

Scale	As indicated
Drawn	SM Checked SJ
Date	22/02/2024
Job No.	2022065
Dwg No.	2809 03 Rev: E

Bushfire Management Plan:
Development Application: Childcare Centre – Lot 631 (108) Lawrence Way, Byford 6122

Planning Solutions

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BPAD Bushfire Planning & Design Accredited Practitioner Level 3
www.ecoaus.com.au

DOCUMENT TRACKING

Project Name	Bushfire Management Plan: Development Application: Childcare centre – Lot 631 (108) Lawrence Way, Byford WA 6122
Project Number	22PER4135
Project Manager	Maitland Ely
Prepared by	Maitland Ely
Reviewed by	Daniel Panickar (BPAD Level 3 – 37802) and Eva Cronin (BPAD Level 2 – 45482)
Approved by	Eva Cronin (BPAD Level 2 – 45482)
Status	Draft
Version Number	v2
Last saved on	14 March 2024

This report should be cited as 'Eco Logical Australia 2024. *Bushfire Management Plan: Childcare centre – Development Application: Lot 631 (108) Lawrence Way, Byford*. Prepared for Planning Solutions.

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Planning Solutions (the client).

Template 2.8.1

Version control	
Version	**Purpose**
v1	Draft – Submission to client
v2	Draft – Minor amendments to response to client comments

Contents

List of Figures

List of Tables

1. Introduction

1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Planning Solutions to prepare a Bushfire Management Plan (BMP) to support a development application for Lot 631 (108) Lawrence Way, Byford WA 6122 (hereafter referred to as the subject site, Figure 1). The proposed development will result in an intensification of land use and involves the development of a Childcare Centre (Figure 2).

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2022; Figure 3), which triggers bushfire planning requirements *under State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; Western Australian Planning Commission (WAPC) 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.4* (the Guidelines; WAPC 2021).

The subject site is located within the Beenyup Grove Estate, in the Shire of Serpentine Jarrahdale. The site is surrounded by residential and large vegetated rural blocks. The north and west of the site are predominantly cleared areas for future residential development. East and south of the site is predominantly managed low threat vegetation on large rural blocks of land. There is, however, a strip of grassland (approximately 11 m wide measured perpendicular to the subject site) located south of site that extends in an east – west direction, connecting to a larger patch of grassland to the southeast.

This assessment has been prepared by ELA Bushfire Consultant Maitland Ely with quality assurance undertaken by Senior Bushfire Consultant Eva Cronin (FPAA BPAD Level 2 Certified Practitioner No. BPAD45482) and Principal Bushfire Consultant Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802).

1.2 Purpose and application of the plan

The primary purpose of this BMP is to act as a technical supporting document to inform planning assessment. This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

The proposed land use within the subject site (i.e. childcare) is categorised as vulnerable due to the activities planned on site and the definitions within the Guidelines (WAPC 2021). A Bushfire Emergency Evacuation Plan (BEEP) is required to be submitted with the development application and will be required to be updated and maintained prior to the occupancy of the childcare centre. This BMP and BEEP are to be used in conjunction with one another to ensure that the intent of SPP 3.7 is achieved.

1.3 Environmental considerations

SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.

The subject site has been previously cleared, resulting in no existing native vegetation on site.

No revegetation is proposed within the development and landscaping will be maintained in a low-threat state in accordance with Clause 2.2.3.2 of AS 3959: 2018.

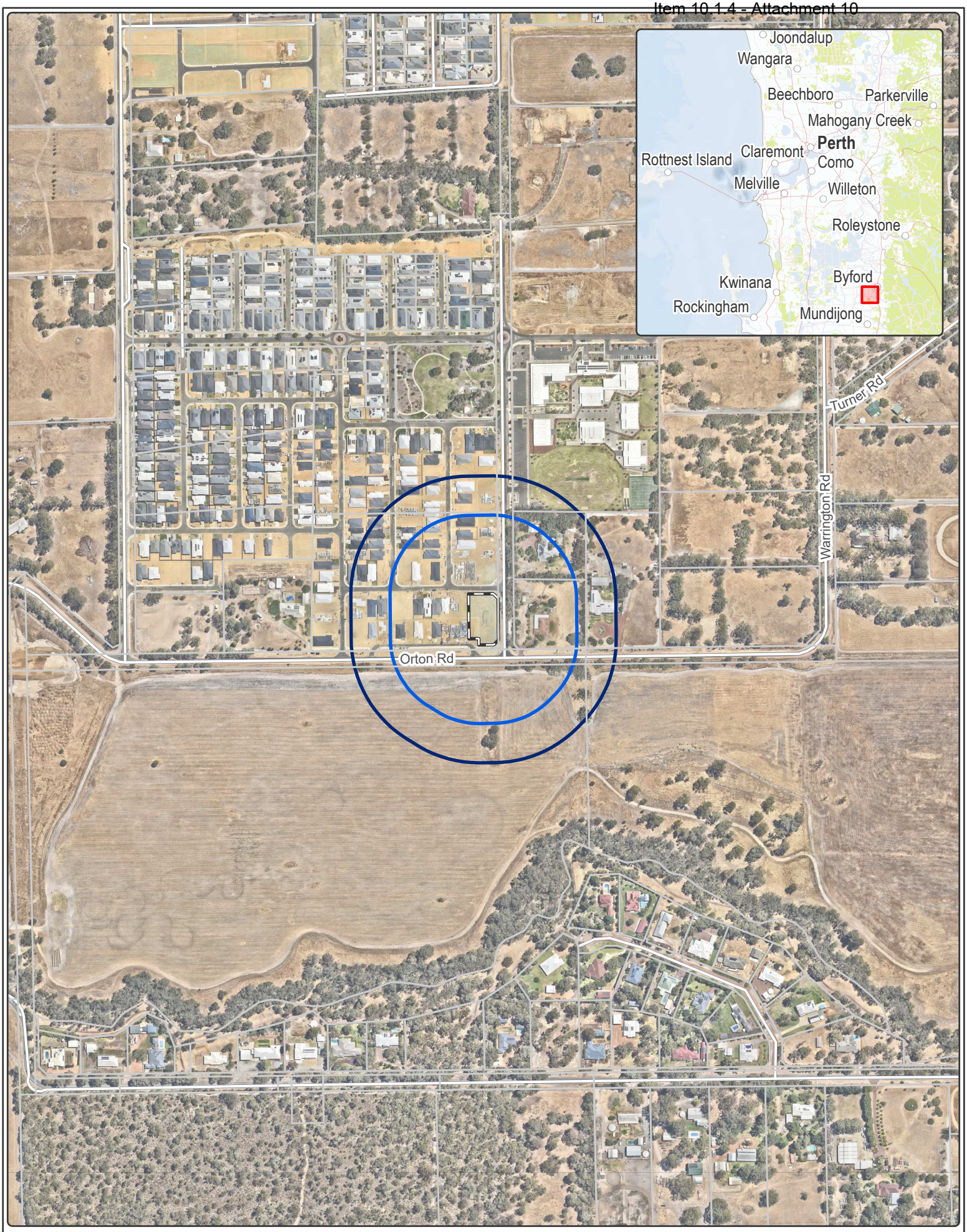

Figure 1: Site Overview

Subject site
100m site assessment
150m site assessment
Cadastre

N

0 50 100 200
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4135-OK Date: 6/03/2024

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1 - SITE PLAN - INTERIM PLAN

1 : 200

LOCATION PLAN

NTS

NOTE
FOOTPATHS, ROAD LAYOUT, SITE BOUNDARIES, SERVICE LOCATION AND LEVELS ARE INDICATIVE ONLY. QUALIFIED SURVEYOR IS TO UNDERTAKE FEATURE CONTOUR SURVEY PRIOR TO ANY DEVELOPMENT.

FENCE TYPES

FN01	2.4m HIGH VERTICAL BLADE SLAT FENCING WITH CLEAR ACRYLIC BACKING FENCE COLOUR: COLORBOND DUNE
FN02	2.4m HIGH RENDERED MASONRY WALL COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING
FN03	2.2m HIGH COLORBOND FENCE: MONUMENT
FN04	1.8m HIGH VERTICAL BLADE SLAT FENCING WITH CLEAR ACRYLIC BACKING FENCE COLOUR: COLORBOND DUNE
FN05	2.2m HIGH RENDERED MASONRY WALL COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING
FN06	1.8m HIGH RENDERED MASONRY WALL COLOUR: HOG BRISTLE QUARTER WITH ANTI-GRAFFTI COATING
FN07	2.2m HIGH VERTICAL BLADE SLAT FENCING WITH CLEAR ACRYLIC BACKING FENCE COLOUR: COLORBOND DUNE

PROJECT SUMMARY

BEENYUP GROVE CHILD CARE CENTRE

NUMBER OF PLACES	**96**
TOTAL SITE AREA	2304m²
SITE AREA PER PLACE	24m²
BUILDING AREA	743m²
BUILDING AREA PER PLACE	7.74m²
LANDSCAPING AREA	64m²
LANDSCAPING % OF SITE	2.8%
TOTAL OUTDOOR PLAY AREA REQ	672m²
OUTDOOR PLAY AREA PROVIDED	**693m²**
REGULAR PARKING BAYS	8
STAFF PARKING BAYS	11
DISABLED PARKING BAYS	1
TOTAL BAYS PROVIDED	**20(19.2 REQ.)**

ROOM	PLACES	UNENCUMBERED SPACE PROV.	UNENCUMBERED SPACE REQ.	STAFF RATIO	STAFF REQ.
ACTIVITY 1	8	26.3m²	26m²	1:4	2
ACTIVITY 2	8	26.1m²	26m²	1:4	2
ACTIVITY 3	20	66m²	65m²	1:5	4
ACTIVITY 4	20	65.2m²	65m²	1:5	4
ACTIVITY 5	20	65.1m²	65m²	1:10	2
ACTIVITY 6	20	65.4m²	65m²	1:10	2
TOTAL	**96**				**16**

DA ISSUE

ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	Date
A	PRELIMINARY	19/12/2022
B	Revision 2	12/01/2023
C	Revision 3	23/01/2023
D	DA ISSUE	16/02/2023
E	OPERATOR CHANGED	22/02/2024

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BEENYUP GROVE CHILDCARE CENTRE, LOT 631(108) LAWRENCE WAY BYFORD, WA 6122

SITE PLAN - INTERIM

Scale	As indicated		
Drawn	SM	Checked	SJ
Date	22/02/2024		
Job No.	2022065		
Dwg No.	**2809 02**	Rev:	**E**

A1 SHEET

Figure 2: Site Plan

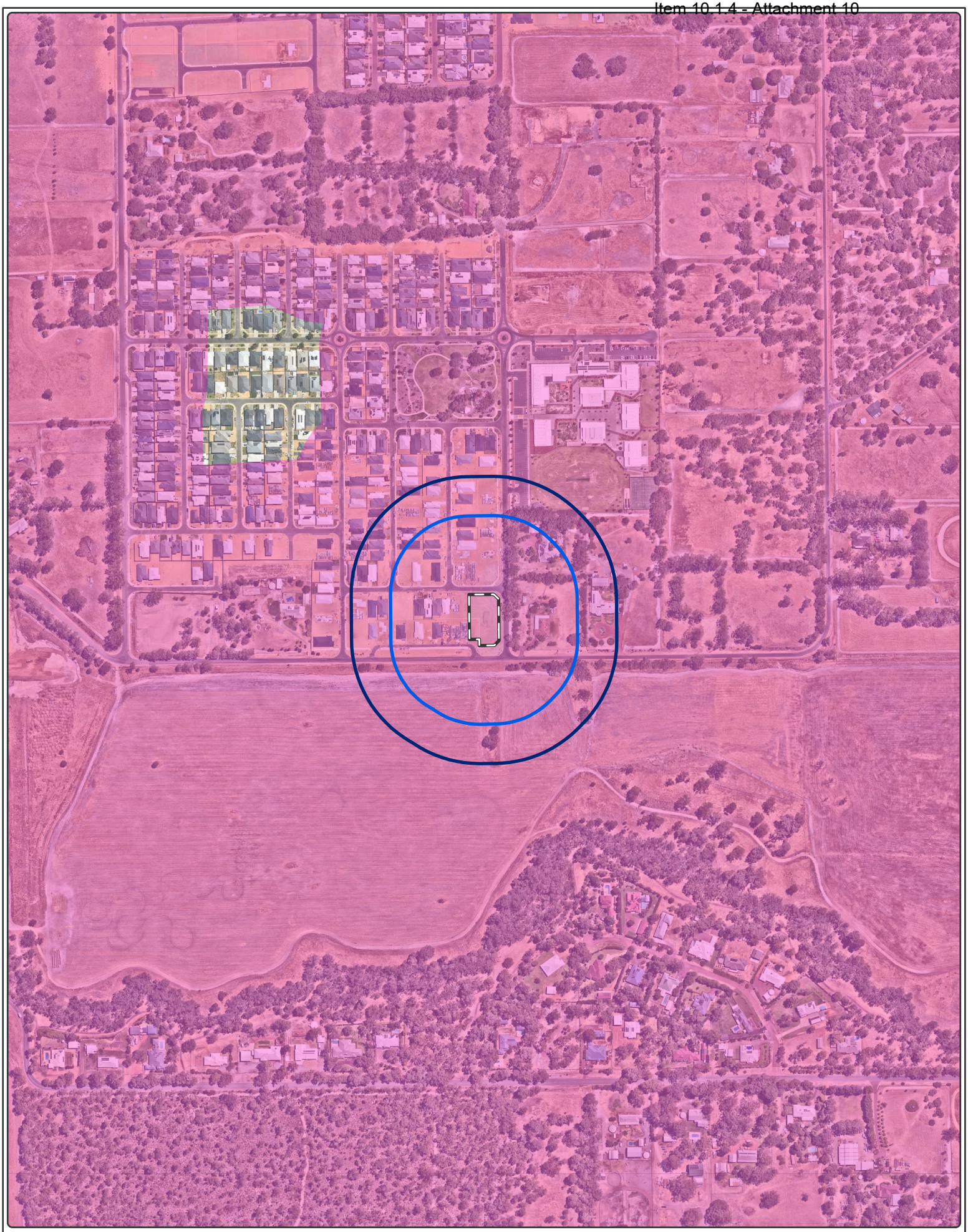

Figure 3: Bushfire Prone Areas

Subject site
100m site assessment
150m site assessment
Bushfire Prone Mapping (DFES 2021)

N

0 50 100 200
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4135-OK Date: 6/03/2024

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2. Bushfire assessment results

2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

2.1.1 Fire Danger Index

A blanket Fire Danger Index (FDI) 80 is adopted for Western Australia, as outlined in Australian Standard *AS 3959: 2018 Construction of Buildings in Bushfire Prone Areas* (SA 2018) and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

2.1.2 Vegetation classification and slope under vegetation

Vegetation and effective slope (i.e. slope under vegetation) within the subject site and surrounding 150 m (the assessment area) were assessed in accordance with the Guidelines and *AS 3959: 2018* with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016). Site assessment was undertaken on 9 December 2022.

The classified vegetation and effective slope for the proposed development from each of the identified vegetation plots are identified below in Table 1 and Figure 4.

Table 1: Classified vegetation as per AS 3959: 2018

Plot	Vegetation Classification	Effective Slope
1	Class G Grassland	All upslopes and flat land (0 degrees)
2	Excluded AS 3959: 2009 2.2.3.2 (e) & (f)	-

Photographs relating to each area and vegetation type are included in Appendix A.

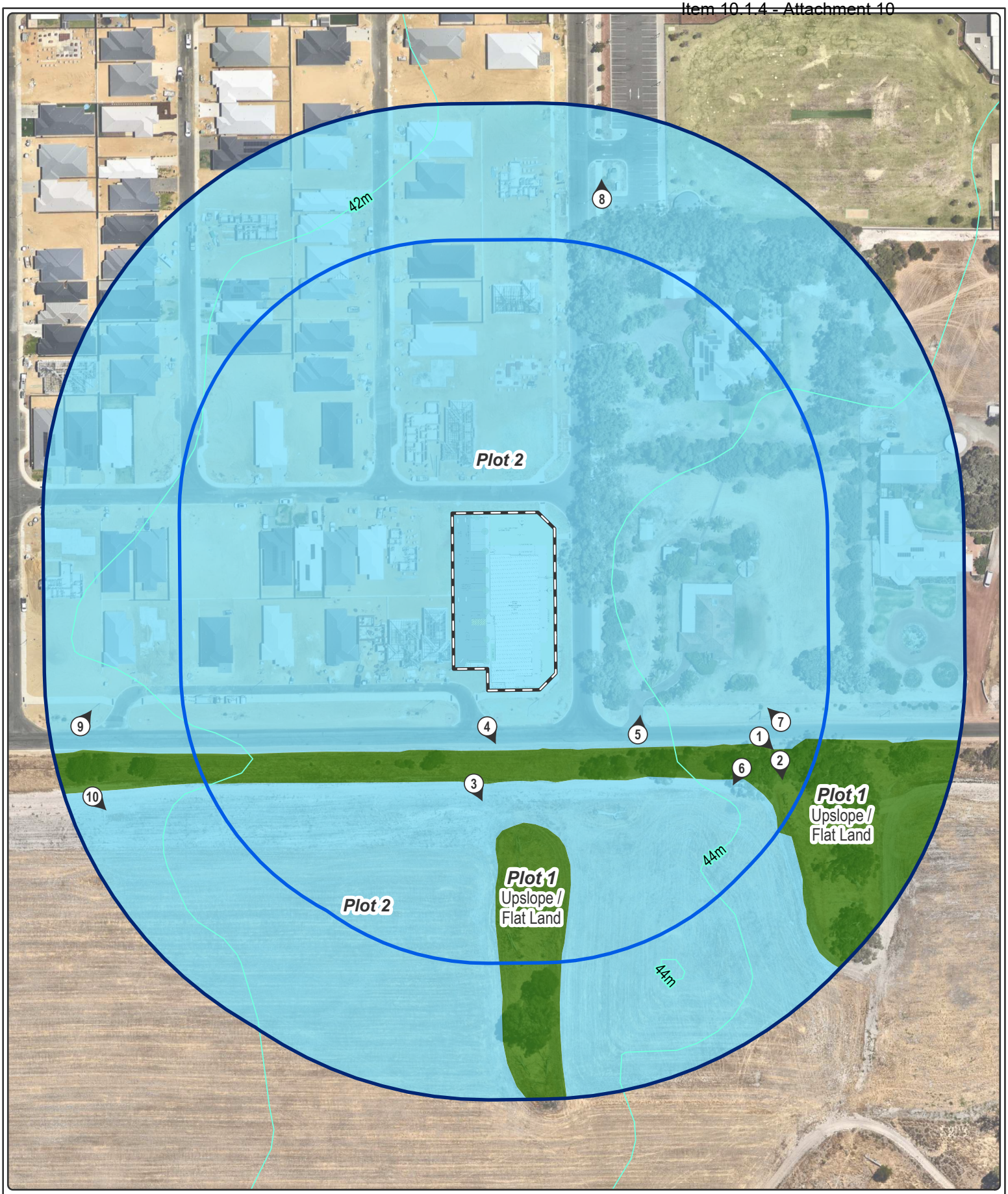

Figure 4: Vegetation Classification

Subject site
100m site assessment
150m site assessment
Contour (2m)
Photo location

Vegetation classification

Class G grassland
Excluded as per clause 2.2.3.2 (e) and (f)

0 15 30 60
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4135-ED/OK Date: 12/03/2024

N

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2.2 Bushfire assessment outputs

A Bushfire Attack Level (BAL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959: 2018 and the bushfire assessment inputs in Section 2.1.

2.2.1 BAL assessment

All land located within 100 m of the classified vegetation depicted in Figure 4 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959: 2018.

A Method 1 BAL assessment (as outlined in AS 3959: 2018) has been completed for the proposed development and incorporates the following factors:

- Fire Danger Index (FDI) rating;
- Vegetation class;
- Slope under classified vegetation; and
- Distance between proposed development area and the classified vegetation.

Based on the identified BAL, construction requirements for the proposed building can then be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability.

2.2.2 Method 1 BAL assessment

Table 2 and Figure 5 display the Method 1 BAL assessment (in the form of BAL contours) that has been completed for the proposed development in accordance with AS 3959: 2018 methodology.

Table 2: Method 1 BAL calculation (BAL contours)

Plot	Vegetation Classification	Effective Slope	Separation distances required				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6-<8	8-<12	12-<17	17-<50
2	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)	-	No separation distances required – BAL-LOW				

Based on the site assessment inputs and BAL assessment, the proposed childcare centre within the subject site has a BAL rating of BAL-12.5.

Given the vulnerable nature of the development, ELA recommends that the childcare centre is constructed to BAL-19 standards.

The Guidelines state:

> *The bushfire construction requirements of the Building Code of Australia only apply to certain types of residential buildings (being Class 1, 2 or 3 buildings and/or Class 10a buildings or decks associated with a Class 1, 2 or 3 building) in designated bushfire prone areas. As such, AS 3959 does not apply to all buildings. Only vulnerable or high-risk land uses that fall within the relevant classes of buildings as set out in the Building Code of Australia will be required to comply with the bushfire construction requirements of the Building Code of Australia. As such, the planning process focuses on the location and siting of vulnerable and high-risk land uses rather than the application of bushfire construction requirements.*

As none of the proposed structures is a Class 1, 2 or 3 building and/or Class 10a building or deck associated with a Class 1, 2 or 3 building, construction to AS 3959: 2018 is not required for this proposal.

As the proposed building is not a Class 1, 2 or 3 building and/or Class 10a building or deck associated with a Class 1,2 or 3 building, construction to AS 3959: 2018 is not required. However, given the vulnerable land use of the proposed development, ELA recommends that the childcare centre building is constructed to BAL-19 (i.e. one level higher than the actual BAL rating for the building).

Table 3: BAL rating for proposed building within the subject site

Proposed building	Plot most affecting BAL rating	Separation Distance (m)	BAL Rating
Childcare Centre	Plot 1	22.06	BAL-12.5

2.3 Identification of issues arising from the BAL assessment

Should there be any changes in development design or vegetation/hazard extent that requires a modified bushfire management response, then the above BAL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP.

All landscaping within the subject site as per Figure 6 will be maintained to a low threat state as per Clauses 2.2.3.2 (f) AS 3959: 2018.

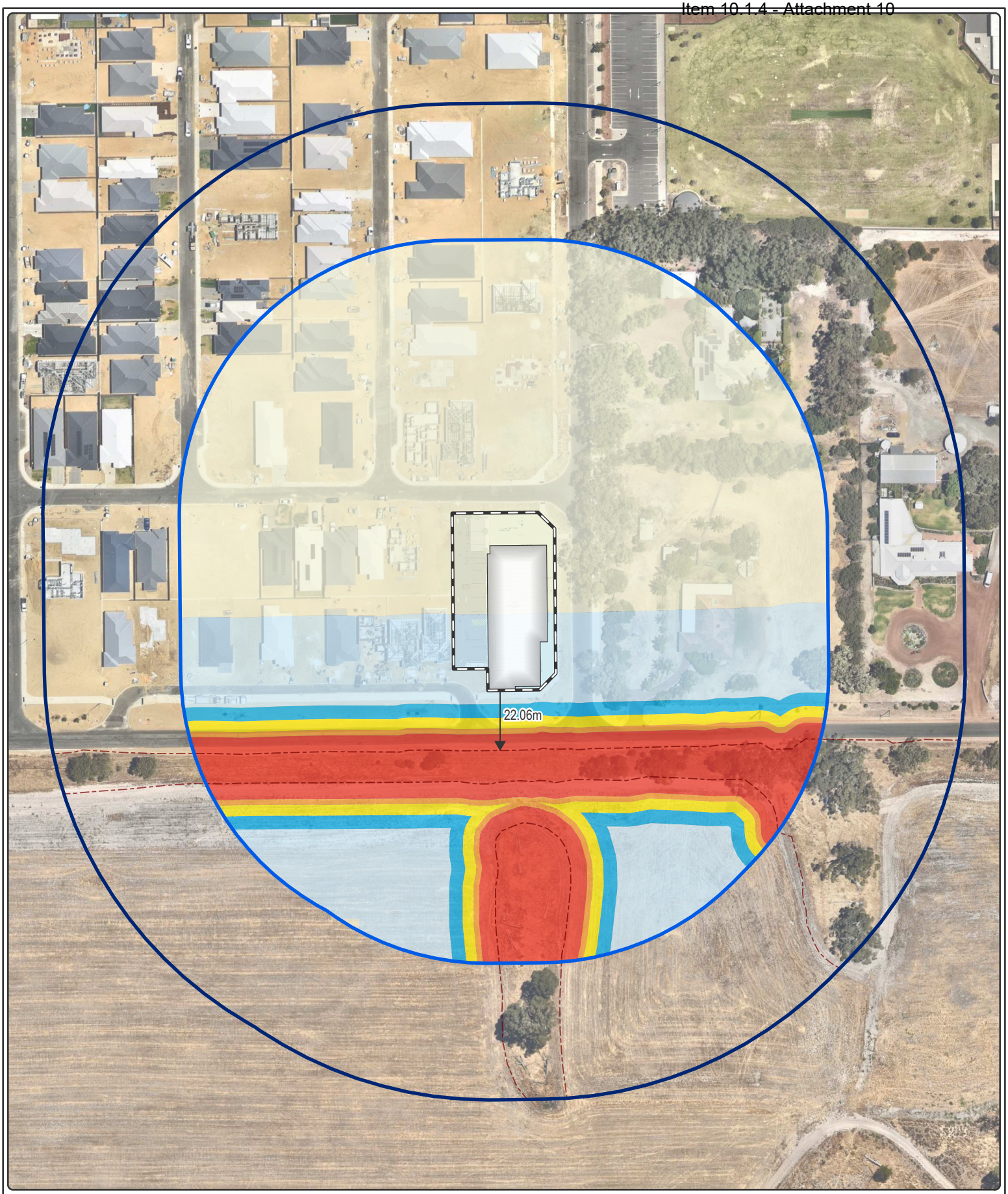

Figure 5: Bushfire Attack Level (BAL) Contours

Subject site
100m site assessment
150m site assessment
Bushfire hazard interface
Proposed building

Bushfire Attack Level (BAL)

BAL - FZ
BAL - 40
BAL - 29
BAL - 19
BAL - 12.5
BAL - LOW

0 15 30 60
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4135-ED/OK Date: 12/03/2024

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3. Assessment against the Bushfire Protection Criteria

3.1 Compliance

The proposed development is required to comply with policy measures 6.2, 6.5 and 6.6 of SPP 3.7 and the Guidelines. Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire risk management measures, as outlined, have been devised for the proposed development in accordance with Guideline acceptable solutions to meet compliance with bushfire protection criteria.

Table 4 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summarises how the intent of each Bushfire Protection Criteria has been achieved. No Performance Solutions (PS) have been proposed for this proposal. These management measures are depicted in Figure 6 where relevant.

Table 4: Summary of solutions used to achieve bushfire protection criteria

Bushfire Protection Criteria	AS	PS	N/A	Comment
Element 1: Location A1.1 Development location	☒	☐	☐	The proposed building within the subject site will be located in an area subject to BAL ratings of ≤BAL-12.5 (Figure 5; Figure 6). The proposed development is considered to be compliant with A1.1.
Element 2: Siting and design of development A2.1 Asset Protection Zone (APZ)	☐	☐	☒	The proposed development area has been assessed to be within an area containing non-vegetated areas that will all continue to be maintained to the standard of a low threat state as per clause 2.2.3.2 (e) & (f) of AS 3959: 2018 in perpetuity. The current siting is sufficient for the potential radiant heat flux to not exceed 29kW/m^2 and the proposed development area, therefore, does not require an APZ. Compliance with A2.1 is not applicable to this proposed development.
Element 3: Vehicular access A3.1 Public Roads	☒	☐	☐	The subject site is accessed via existing public roads, with access/egress point into subject site coming off Maive Street. An egress point to existing Cap Road is also proposed. The Guidelines do not prescribe values for the trafficable (carriageway/pavement) width of public roads as they should be in accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area. ELA's assessment identified that all of the surrounding roads are bitumen with estimated width of the sealed surface achieving a minimum width of ≥6 m and therefore consider the existing road network would provide suitable access and egress for the community and emergency services personnel in the event of a bushfire. Vehicular access technical

Bushfire Protection Criteria	AS	PS	N/A	Comment
				requirements in accordance with the Guidelines are detailed in (Appendix C). No public roads are proposed as a part of this Development Application. The proposed development is considered to be compliant with A3.1.
A3.2a Multiple access routes	☒	☐	☐	Two access routes to/from the subject site are available (Figure 6). Refer to A3.1 above for details regarding vehicular access technical requirements for public roads. The proposed development is considered to be compliant with A3.2a.
A3.2b Emergency Access way	☐	☐	☒	No emergency access ways are required or proposed.
A3.3 Through-roads	☐	☐	☒	This acceptable solution does not apply to Development Applications.
A3.4a Perimeter roads	☐	☐	☒	This acceptable solution does not apply to Development Applications.
A3.4b Fire service access route	☐	☐	☒	This acceptable solution does not apply to Development Applications.
A3.5 Battle-axe access legs	☐	☐	☒	This acceptable solution does not apply to Development Applications.
A3.6 Private driveways	☐	☐	☒	The subject site is serviced by reticulated water and the subject site is accessed by a public road where speed limit is not greater than 70 km/hr. The childcare centre building is within 70 m of a public road as the subject site is bound by Orton Road to the south, Lawrence Way to the east and Maive Street to the north. Given the above, this acceptable solution does not apply to the Development Application.
Element 4: Water A4.1 Identification of future water supply	☐	☐	☒	This acceptable solution does not apply to Development Applications.
A4.2 Provision of water for firefighting purposes	☒	☐	☐	Existing reticulated water is present within the area. ELA assume the hydrants and the existing reticulated water supply present within the surrounding recently developed Beenyup Grove Estate likely complies with Water Corporations Design Standard DS 63 Water Reticulation Standard, however, recommend this is confirmed with the Water Corporation, where possible. Hydrants within the surrounding residential development are generally spaced approximately 150 m apart) as depicted in Figure 6. Note: this development may require a hydrant system within the subject site that complies with the FES Commissioner's operational requirements as per regulation 18B of the Building Regulations 2012,

Bushfire Protection Criteria	AS	PS	N/A	Comment
				however, this will be determined by the building surveyor and decision maker(s). The proposed development is considered to be compliant with A4.2.
Element 5: Vulnerable tourism land uses	☐	☐	☒	This development application is not considered vulnerable tourism land use. Element 5 is not applicable to this proposed development.

NOTE – AS- ACCEPTABLE SOLUTION, PS- PERFORMANCE SOLUTION, N/A- NOT APPLICABLE

3.2 Additional Bushfire Requirements

A BEEP has been prepared for the proposed childcare centre in accordance with SPP 3.7 and '*A Guide to developing a Bushfire Emergency Evacuation Plan*' (WAPC 2019). This BEEP (ELA 2024) details evacuation procedures in the event of a bushfire.

Due to the vulnerable nature of the land use, the increased bushfire risk of the area and the potential emergency evacuation requirements in the event of a bushfire, ELA recommend the proposed buildings be constructed to BAL-19 standard.

All other landscaping within the subject site will be maintained to a low threat state as per Clauses 2.2.3.2 (f) AS 3959: 2018.

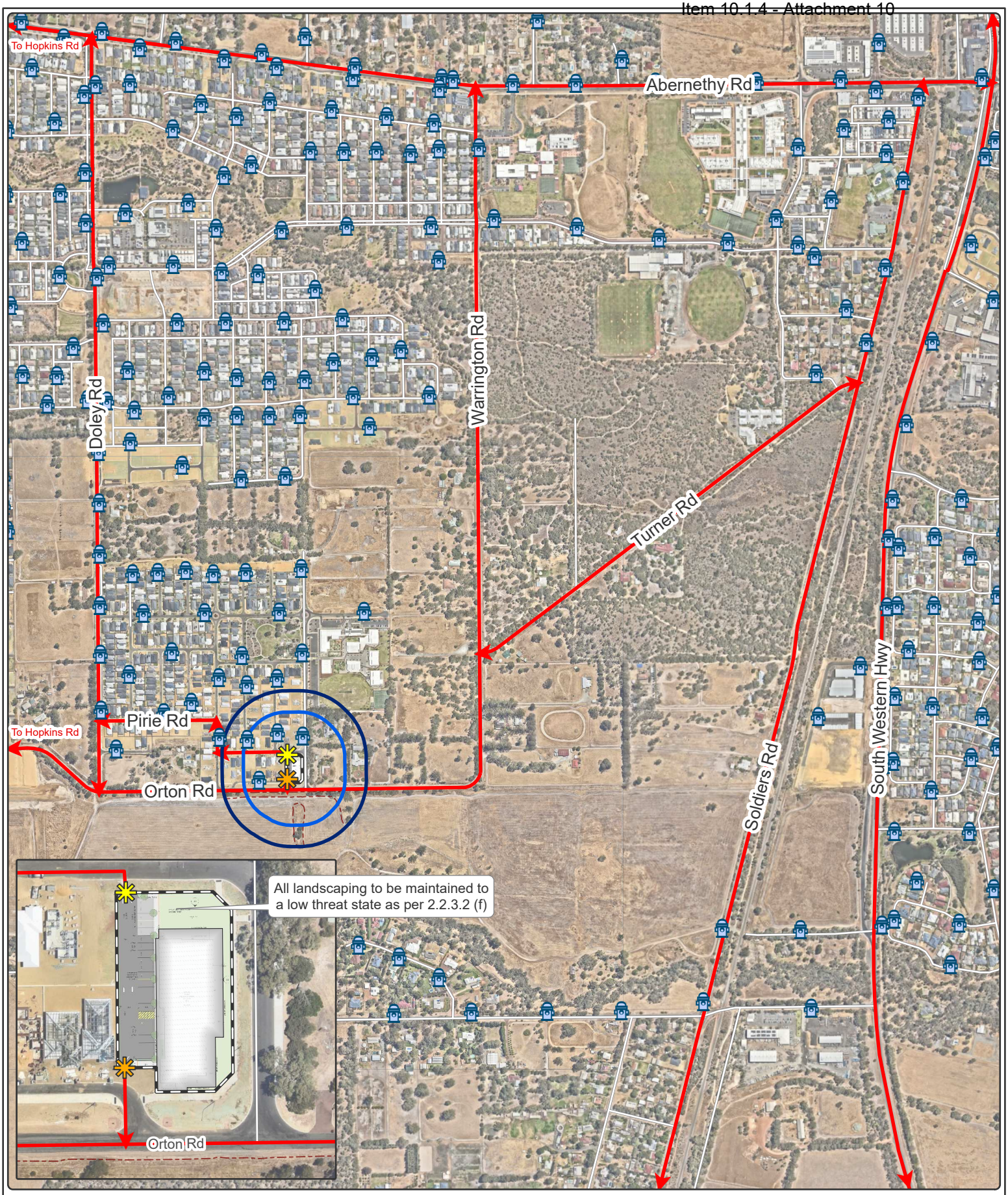

Figure 6: Spatial representation of the bushfire management strategies

- Subject site
- 100m site assessment
- 150m site assessment
- Bushfire hazard interface
- Proposed building
- Lot boundary
- Access/egress point
- Egress point
- Hydrant

0 100 200 400
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

22PER4135-ED/OK Date: 12/03/2024

N

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4. Implementation and enforcement

Implementation of the BMP applies to the developer, future owners within the subject site and the local government to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 5. These measures will be implemented to ensure the ongoing protection of life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 5: Proposed work program

No	Bushfire management measure	Responsibility
Prior to occupancy		
1	Ensure proposed building is located outside of areas subject to BAL-FZ and BAL-40 as per the design in Figure 6.	Developer
2	Extend reticulated water supply to appropriate areas	Developer
3	Ensure landscaping within the subject site is maintained to a low threat state as per exclusion clause 2.2.3.2 of AS 3959: 2018 (Figure 6).	Developer
4	Construct internal road network as per plan in Figure 6.	Developer
5	Construct childcare centre building to BAL-19.	Builder
6	Implement the Bushfire Emergency Evacuation Plan (BEEP) prior to occupancy.	Developer
7	Place Section 70A Notification on Title advising lot is located in a bushfire prone area and subject to requirements of this BMP.	Shire of Serpentine Jarrahdale
Ongoing management		
8	Maintain landscaping within the subject site to a low threat state.	Owner/Operator
9	Review the BEEP prepared for the development on an annual basis and updated details/procedures as required.	Owner/Operator

5. Conclusion

In the author's professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development. As such, the proposed development is consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.

6. References

Shire of Serpentine Jarrahdale (SoSJ), 2022, Fire Hazard Reduction Notice, [Online], available from 23265 - Fire Hazard Reduction Notice - 2022-23 FINAL.pdf (sjshire.wa.gov.au)

Department of Fire and Emergency Services (DFES), 2022, *Map of Bush Fire Prone Areas, [Online]*, Government of Western Australia, available from: http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx

Department of Planning (DoP), 2016, *Visual guide for bushfire risk assessment in Western Australia*. DoP, Perth.

Eco Logical Australia. 2024. Bushfire Emergency Evacuation Plan. Development Application: Childcare Centre on Lot 631 (108) Lawrence Way, Byford 6122. Prepared for Planning Solutions.

Standards Australia (SA), 2018, *Construction of buildings in bushfire-prone areas, AS 3959-2018*. SAI Global, Sydney.

Western Australian Planning Commission (WAPC), 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. WAPC, Perth.

Western Australian Planning Commission (WAPC), 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4 (including appendices),* WAPC, Perth.

Western Australian Planning Commission (WAPC), 2019, *A guide to developing a Bushfire Emergency Evacuation Plan, October 2019*.

Appendix A – Classified Vegetation Photos

Plot 1	Classification or Exclusion Clause	Class G Grassland

Photo Point 1

This plot is comprised of grasses and isolated trees.

This area has a land management agreement over it between the developer of the subject site (Parcel Property) and the landowner of this area (LWP Property) to manage the land in accordance with the Shire of Serpentine Jarrahdale firebreak notice, thereby creating low threat vegetation. Whilst this area could be excluded following fuel reduction works, ELA has adopted a conservative approach to this area given the proposed land use within the subject site (i.e. childcare centre) is vulnerable.

Slope under vegetation has been assessed as upslope/flat land.

Plot 1	Classification or Exclusion Clause	Class G Grassland

Photo Point 2

This plot is comprised of grasses and isolated trees.

This area has a land management agreement over it between the developer of the subject site (Parcel Property) and the landowner of this area (LWP Property) to manage the land in accordance with the Shire of Serpentine Jarrahdale firebreak notice, thereby creating low threat vegetation. Whilst this area could be excluded following fuel reduction works, ELA has adopted a conservative approach to this area given the proposed land use within the subject site (i.e. childcare centre) is vulnerable.

Slope under vegetation has been assessed as upslope/flat land.

Plot 1	Classification or Exclusion Clause	Class G Grassland

Photo Point 3

This plot is comprised of grasses and isolated trees.

This area has a land management agreement over it between the developer of the subject site (Parcel Property) and the landowner of this area (LWP Property) to manage the land in accordance with the Shire of Serpentine Jarrahdale firebreak notice, thereby creating low threat vegetation. Whilst this area could be excluded following fuel reduction works, ELA has adopted a conservative approach to this area given the proposed land use within the subject site (i.e. childcare centre) is vulnerable.

Slope under vegetation has been assessed as upslope/flat land.

Plot 1	Classification or Exclusion Clause	Class G Grassland

Photo Point 4

This plot is comprised of grasses and isolated trees.

This area has a land management agreement over it between the developer of the subject site (Parcel Property) and the landowner of this area (LWP Property) to manage the land in accordance with the Shire of Serpentine Jarrahdale firebreak notice, thereby creating low threat vegetation. Whilst this area could be excluded following fuel reduction works, ELA has adopted a conservative approach to this area given the proposed land use within the subject site (i.e. childcare centre) is vulnerable.

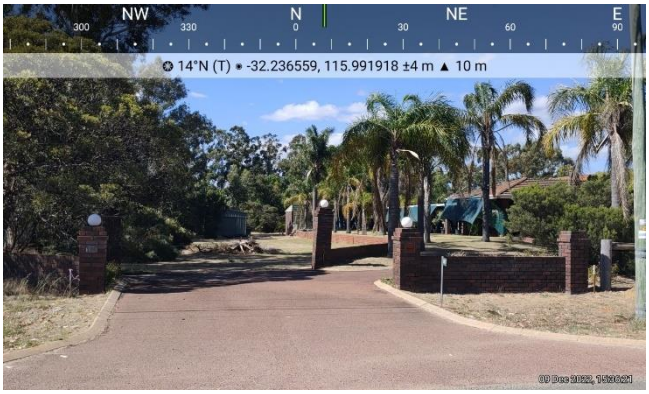
Slope under vegetation has been assessed as upslope/flat land.

Plot 2	Classification or Exclusion Clause	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 5

Non-vegetated area that is permanently cleared of vegetation (i.e., driveways and residential development).

Vegetation within this plot is regarded as low threat due to factors such as flammability, moisture content and fuel load as it is managed grass (managed yard).



Plot 2	Classification or Exclusion Clause	Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 6

Vegetation within this plot is regarded as low threat due to factors such as flammability, moisture content and fuel load as it is managed grass.

This land appears well-managed in accordance with the Shire of Serpentine Jarrahdale firebreak notice.

Plot 2	Classification or Exclusion Clause	Excluded AS 3959: 2018 2.2.3.2 (e)

Photo Point 7

Non-vegetated area that is permanently cleared of vegetation (i.e., roads and residential development).

Plot 2	Classification or Exclusion Clause	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 8

Non-vegetated area that is permanently cleared of vegetation (i.e., driveways and residential development).

Vegetation within this plot is regarded as low threat due to factors such as flammability, moisture content and fuel load as it is managed landscaping.

Plot 2	Classification or Exclusion Clause	Excluded AS 3959: 2018 2.2.3.2 (e)

Photo Point 9

Non-vegetated area that is permanently cleared of vegetation (i.e., roads and future residential development.

Plot 2	Classification or Exclusion Clause	Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 10 (background)

Vegetation within this plot is regarded as low threat due to factors such as flammability, moisture content and fuel load as it is managed grass.

This land appears well-managed in accordance with the Shire of Serpentine Jarrahdale firebreak notice.

Appendix B – Standards for Asset Protection Zones

The following standards have been extracted from the *Guidelines for Planning in Bushfire Prone Areas v 1.4* (WAPC 2021).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

a. Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29) in all circumstances.

b. Location: the APZ should be contained solely within the boundaries of the lot on which a building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).

c. Management: the APZ is managed in accordance with the requirements of '*Standards for Asset Protection Zones*' (below):

- Fences within the APZ:
  - Should be constructed from non-combustible materials or bushfire-resisting timber referenced in Appendix F of AS 3959.
- Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness):
  - Should be managed and removed on a regular basis to maintain a low threat state;
  - Should be maintained at <2 tonnes per hectare (on average); and
  - Mulches should be non-combustible (e.g. stone, gravel or crushed mineral earth) or wood mulch >6 millimetres in thickness.
- Trees (>6 metres in height):
  - Trunks at maturity should be a minimum distance of six metres from all elevations of the building;
  - Branches at maturity should not touch or overhand a building or powerline;
  - Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation;
  - Canopy cover within the APZ should be <15 per cent of the total APZ area; and
  - Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ.

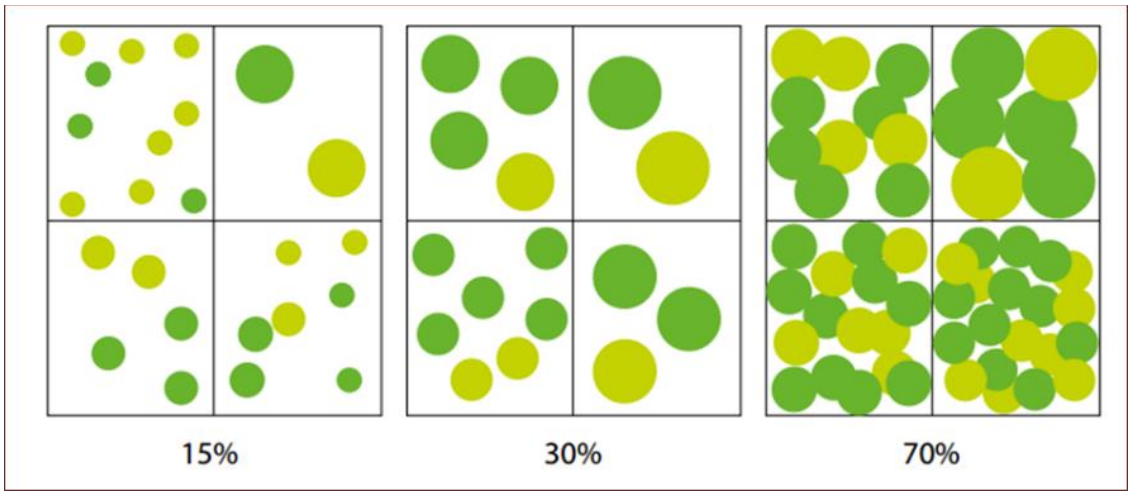


Figure 7: Illustrated tree canopy cover projection (WAPC 2021)

- Shrub and scrub 0.5 metres to six metres in height (shrub or scrub >6 metres in height are to be treated as trees):
  - Should not be located under trees or within three metres of buildings;
  - Should not be planted in clumps >5 square metres in area; and
  - Clumps should be separated from each other and any exposed window or door by at least 10 metres.
- Ground covers <0.5 metres in height (ground covers >0.5 metres in height are to be treated as shrubs):
  - Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above; and
  - Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
- Grass:
  - Grass should be maintained at a height of 100 millimetres or less, at all times; and
  - Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
- Defendable space:
  - Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
- LP Gas Cylinders:
  - Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building;
  - The pressure relief valve should point away from the house;
  - No flammable material within six metres from the front of the valve; and
  - Must site on a firm, level and non-combustible base and be secured to a solid structure.

Additional notes

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

Plant flammability, landscaping design and maintenance should also be considered for trees, shrub, scrub and ground covers with the APZ. Please refer to explanatory notes 'E2 Managing an Asset Protection Zone (APZ) to a low threat state,' 'E2 Landscaping and design of an asset protection zone,' and 'E2 Plant flammability' in the Guidelines for further information relating to APZ standards.

Appendix C - Vehicular access technical requirements (WAPC 2021)

Technical requirements	Public road	Emergency access way[1]	Fire service access route[1]	Battle-axe and private driveways[2]
Minimum trafficable surface (m)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (m)	N/A	6	6	6
Minimum vertical clearance (m)	4.5			
Minimum weight capacity (t)	15			
Maximum grade unsealed road[3]	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum grade sealed road[3]	As outlined in the IPWEA Subdivision Guidelines	1:7 (14.3%)		
Maximum average grade sealed road	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Minimum inner radius of road curves (m)	As outlined in the IPWEA Subdivision Guidelines	8.5		

[1] To have crossfalls between 3 and 6 %.

[2] Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

[3] Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle

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Bushfire Emergency Evacuation Plan Development Application: Childcare Centre on Lot 631 (108) Lawrence Way, Byford 6122

Planning Solutions

IN CASE OF A BUSHFIRE EMERGENCY, FOLLOW THE EVACUATION PLAN LOCATED IN APPENDIX A WHICH SHOULD ALSO BE PLACED IN PROMINENT STAFF LOCATIONS.

THIS REPORT IS TO SUPPORT THE PLANNING APPROVAL PROCESS AND SUPPORTING DETAIL TO THE EVACUATION PLAN

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DOCUMENT TRACKING

Project Name	Bushfire Emergency Evacuation Plan Development Application: Lot 631 (108) Lawrence Way, Byford WA 6122
Project Number	22PER4135
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Reviewed by	Eva Cronin (BPAD Level 2 45482) & Daniel Panickar (BPAD Level 3- 37802)
Approved by	Eva Cronin (BPAD Level 2 45482)
Status	Draft
Version Number	v1
Last saved on	14 March 2024

This report should be cited as 'Eco Logical Australia 2024. *Bushfire Emergency Evacuation Plan* . Prepared for Planning Solutions.

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Planning Solutions (the client).

Template 2.8.1

Version control	
Version	Purpose
v1	Draft – Submission to client

Contents

List of Tables

1. Facility Details

This Bushfire Emergency Evacuation Plan (BEEP) is for the proposed childcare centre at Lot 631 (108) Lawrence Way, Byford within the Shire of Serpentine Jarrahdale and has been designed to assist management to protect life and property in the event of a bushfire.

This plan was developed in line with '*A Guide to developing a Bushfire Emergency Evacuation Plan*' (WAPC 2019) to support the Development Application to construct a new childcare centre on the site. Some items are listed as To Be Confirmed (TBC) as the required information was not available during the time this plan was developed. It is critical that this plan be updated with all required information prior to the occupation of this proposed facility.

This plan assumes that the Bushfire Management Plan prepared for the development will be implemented, including construction recommendations to achieve a Bushfire Attack Level (BAL) of BAL-19.

This plan outlines procedures for both evacuation and shelter-in-place to enhance the protection of occupants from the threat of a bushfire.

The primary action to follow in a bushfire emergency is to:

EARLY CLOSURE OF THE FACILITY UNDER EXTREME (FBI≥75 AND ON ADVICE BY DFES) and CATASTROPHIC FIRE DANGER RATINGS

The primary action to follow in a bushfire emergency is to:

EVACUATE OFF-SITE (ONLY IF THE FIRE IS WITHIN VEGETATION TO THE SOUTH OF ORTON ROAD AND TIME TO BUSHFIRE ARRIVAL IS GREATER THAN 60 MINUTES OR AS OTHERWISE ADVISED BY EMERGENCY SERVICES).

The secondary action to follow in a bushfire emergency is to:

SHELTER-IN-PLACE

Table 1: Facility Details

Name of on-site contact person:	TBC
Phone number:	TBC
Type of facility:	Childcare Centre
Number of buildings:	1
Number of employees:	19
Number of occupants:	up to 125
Number of vulnerable occupants/with support needs:	96 children
Estimated maximum number of visitors:	TBC

Description of support needs: The childcare centre will be caring for young children that require on going supervision. Staff onsite are trained and are familiar with the requirements to care for these children.

1.1 Site risks, assumptions and recommendations

In consideration of the risk to the site and occupants' characteristics the following points were considered in determining the evacuation requirements of the Childcare Centre:

- Site risk:
  - Vegetation that poses the greatest bushfire threat to this site is located to the south of the site;
  - The vegetation to the south is a narrow strip of unmanaged grassland on opposite side of adjacent running Orton road to the south of the site that extends further east and west;
  - Bushfire hazards are separated from the development site by an area managed to low threat state as per the section 2.2.3.2 of AS 3959: 2018 and existing road adjacent to the site;
  - Potential ignition sources are likely from nearby vehicles using roads or people accessing the nearby grassland;
  - It is possible that impacts could be expected before occupants have had the opportunity to undertake safe evacuation off-site (i.e. bushfire scenarios which occur with limited warning and result in insufficient time to evacuate before bushfire attack is experienced);
- Occupant characteristics:
  - 96 children and 19 staff;
- Evacuation timing:
  - Time for notification of an approaching bushfire and that evacuation is required – 10 minutes;
  - Time for assembly and mobilisation of all children and staff – 15 minutes;
  - Off-site evacuation is Beenyup Primary School approximately 350 m walk north;
  - Time to travel to off-site evacuation location – 15 minutes
    - Total time to load and travel – 40 minutes;
  - Adding a safety factor of 1.5 results in total evacuation time of 60 minutes;
  - In a rapid onset bushfire scenario, the safest option is to remain on site;
  - The accuracy of evacuation timing is TBC with the Childcare Centre operator and the BEEP must be updated prior to occupancy.
  - The designated off-site location is located on the maintained oval within the Beenyup Primary School grounds, north of the proposed Childcare Centre.
  - Designation of the Beenyup Primary School as the off-site evacuation location is subject to approval and support from the Shire of Serpentine Jarrahdale and Beenyup Primary School. This will be reviewed at the time of updating the BEEP prior to occupancy, including route (by foot) to access the oval at Beenyup Primary School.
  - Evacuation to the designated off-site location (maintained oval within the Beenyup Primary School grounds) will only be triggered if the fire is within vegetation south of Orton Road and there is enough time to evacuate safely. If the fire is within vegetation east of Lawrence Way, north or west of the site then sheltering on-site within the shelter in place building (childcare centre building) is likely to be considered safer, as evacuation to the Beenyup

Primary School oval may result in occupants moving towards the bushfire threat, noting the off-site evacuation location nominated is an open space area.

- Limitations
  - In times of stressful situations such as evacuation and fire, children's behaviour can be erratic;
  - Traffic conditions in a bushfire emergency may impact on the time required (and safety) of the on-foot evacuation to Beenyup Primary School;
  - Smoke and heat from a bushfire (particularly in a rapid-onset event) may limit the ability for on-foot evacuation to Beenyup Primary School;
- Given the possibility for multiple bushfire scenarios to affect the proposed Childcare Centre, multiple bushfire risk management measures are proposed, which include:
  - BAL-19 construction with BAL-12.5 exposure;
  - Closure on site based on the highest FDR ratings; and
  - An evacuation plan that identifies clear triggers and actions.

Based on the above analysis, the following actions are recommended:

1. The primary bushfire management action is **EARLY CLOSURE OF THE FACILITY UNDER CATASTROPHIC FIRE DANGER RATINGS.**
2. The primary action to follow in a bushfire emergency is **EVACUTE OFF-SITE (ONLY IF THE FIRE IS WITHIN VEGETATION TO THE SOUTH OF ORTON ROAD AND TIME TO BUSHFIRE ARRIVAL IS GREATER THAN 60 MINUTES OR AS OTHERWISE ADIVSED BY EMERGENCY SERVICES).**
3. The secondary action of follow in a bushfire emergency is **SHELTER-IN-PLACE.**
4. Contact with bus contractors to be made prior to and throughout the bushfire season to ensure a bus (with minimum capacity to cater for 125 occupants including suitable seating to cater for young children) is on standby to facilitate evacuation to an alternative off-site location via bus, in circumstances where evacuation to the maintained oval within the Beenyup Primary School grounds is not deemed safe and sufficient time to evacuate to an alternative location is available as advised by DFES.

If shelter-in-place is required, the proposed Childcare Centre building has been determined to be a suitable on-site safer location based on the following inputs:

- The proposed Childcare Centre building is large enough to provide floor space for the maximum 125 users on site. Minimum recommended floor space is 1 person per m^2 which equals 125 m^2. The total building area is 743 m^2 (with a total of 314.1 m^2 unencumbered space provisions among six activity rooms). ELA, therefore, expect useable floor space within the proposed Childcare Centre is likely to be sufficient, however this is TBC;
- The proposed Childcare Centre building will have an APZ sufficient to ensure the maximum radiant heat flux exposure of the building will be ≤12.5 kW/m^2;
- The proposed Childcare Centre building will be built to a BAL-19 construction standard in line with AS 3959: 2018; and

- The proposed Childcare Centre building is easily accessible by emergency services through use of the proposed carpark and driveway and direct access to both Orton Road (egress only) and Maive Street (access and egress).

Any direct and specific evacuation messages regarding this site from DFES or other emergency personnel will override the above actions.

2. Responsibilities

The following outlines who has responsibility for implementing the emergency procedures in the event of a bushfire.

Table 2: Staff requirements in event of bushfire emergency

Position	Name of Person	Building/area of Responsibility	Responsibility	Phone Number
Facility Manager	TBC	Whole Facility	Contact with DFES; Evacuation of staff and students	TBC
Chief Fire Warden	TBC	Whole of facility	Contact with DFES Shelter-in-place plan enacted if required: Account for location of all patrons, staff and visitors	TBC
Secondary Fire Warden	TBC	Whole of facility	All doors and windows closed; Account for all patrons	TBC
Gardener/landscape contractor	TBC	Outside Grounds	Irrigation system enabled if impact of fire imminent; Maintenance of landscaping as per Section 4 of this BEEP	TBC

3. Emergency Contacts

3.1 Emergency External Contacts

Name Organisation	Office/Contact	Contact Details
Fire, Police, Ambulance	Fire or Emergency	000
Department of Fire & Emergency Services	Emergency information	13 33 37 (13 DFES)
Emergency WA	Warnings and Incidents	www.emergency.wa.gov.au
SES	Emergency Assistance	132 500
Police Station	Mundijong	(08) 9526 5111
Armadale Heath Service	Local Hospital	(08) 9391 2000
Bureau of Meteorology (BoM)	Recorded Information	1300 659 213

3.2 Emergency Internal Contacts

Name or Organisation	Office/Contact	Contact Details
TBC	Facility Manager	TBC
TBC	Chief Fire Warden	TBC
TBC	Secondary Fire Warden	TBC

4. Bushfire Preparedness, Awareness and Pre-Emptive Procedures

The following actions are to be undertaken by proposed childcare centre at the specified times.

4.1 Ongoing actions (year-round)

Actions with regards to landscaping within the childcare centre grounds have been developed with reference to *Standards for Asset Protection Zones (WAPC, 2021)*. The following items should be checked prior to November of each year:

- Fences within the APZ:
  - Should be constructed from non-combustible materials or bushfire-resisting timber referenced in Appendix F of AS 3959.
- Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness):
  - Should be managed and removed on a regular basis to maintain a low threat state;
  - Should be maintained at <2 tonnes per hectare (on average); and
  - Mulches should be non-combustible (e.g. stone, gravel or crushed mineral earth) or wood mulch >6 millimetres in thickness.
- Trees (>6 metres in height):
  - Trunks at maturity should be a minimum distance of six metres from all elevations of the building;
  - Branches at maturity should not touch or overhand a building or powerline;
  - Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation;
  - Canopy cover within the APZ should be <15% of the total APZ area; and
  - Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ.
- Shrub and scrub 0.5 metres to six metres in height (shrub or scrub >6 metres in height are to be treated as trees):
  - Should not be located under trees or within three metres of buildings;
  - Should not be planted in clumps >5 square metres in area; and
  - Clumps should be separated from each other and any exposed window or door by at least 10 metres.
- Ground covers <0.5 metres in height (ground covers >0.5 metres in height are to be treated as shrubs):
  - Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above; and
  - Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
- Grass:
  - Grass should be maintained at a height of 100 millimetres or less, at all times; and

- Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.

- Defendable space:
  - Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
- LP Gas Cylinders:
  - Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building;
  - The pressure relief valve should point away from the house;
  - No flammable material within six metres from the front of the valve; and
  - Must site on a firm, level and non-combustible base and be secured to a solid structure.

Detailed information and checklists are available on the DFES website including the '*The Homeowner's Bushfire Survival Manual*'[1] and the '*Fire Chat Bushfire Preparedness Toolkit*'[2] published by DFES:

[1] https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES_Bushfire-Homeowners_Survival_Manual.pdf

[2] https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES-Fire-Chat-Bushfire-Preparedness-Toolkit.pdf

4.2 Actions immediately prior to the bushfire season

- Review Emergency Evacuation Plan to ensure details, procedures and contact phone numbers are correct and up to date;
- Ensure employees and other occupants are informed and familiar with the procedures laid out in the Emergency Evacuation Plan;
- Place current version of Bushfire emergency evacuation poster plan (Appendix A) in facility in visible location(s);
- Ensure adequate levels of drinking water are available in the facility in case of emergency;
- Ensure any firefighting equipment (hoses etc.) is serviceable and available;
- Ensure no hazards are present (for example, rubbish piles) that could contribute to increased fire intensity;
- Ensure property access is kept clear and easily trafficable;
- Ensure first aid kits, fire extinguishers, emergency lighting and other emergency resources are current, serviceable and accessible;
- Ensure roof and gutters are free from leaf litter and debris;
- Ensure an emergency evacuation kit has been prepared and is easily accessible by staff;
- Contact with school bus contractors to be made prior to November annually with commitment to provide bus transport in the event of emergency evacuation for up to 125 staff and children. This is to ensure that there is an alternative option for evacuation available in circumstances where evacuation to the maintained oval within the Beenyup Primary School grounds is not deemed safe. School bus contractor to be placed on standby for possible evacuation (min 125 seat capacity) when FDR is Extreme or higher; and
- Brief all staff on the bushfire evacuation procedures with updated advice provided when fire warnings are issued by Emergency Services (currently DFES) for the locality.

4.3 Ongoing actions during the bushfire season

- Maintain the landscaped grounds to the requirements of *Standards for Asset Protection Zones*;
- Maintain compliance with the local government's annual firebreak and fuel load notice issued under section 33 of the *Bush Fires Act 1954*;
- Ensure defendable spaces around buildings and assembly points are maintained; and
- Update contact details of the emergency management team and employees.

4.4 Fire Danger Rating System

Additional critical preparedness actions are to be undertaken under certain Fire Danger Ratings (FDRs) and/or Total Fire Bans as detailed below.

The FDR indicates the potential level of danger should a bushfire start, providing information so that action can be taken to protect lives from the potentially dangerous impacts of bushfires. During the Bushfire Danger Period the forecast FDR for the following day is typically released around 4pm but can be changed as weather conditions unfold. The current and predicted FDR, for the following day, are available via the DFES and BoM websites[3].

On Extreme (FBI≥75 and on advice by DFES) and Catastrophic FDRs, the proposed childcare centre will be closed with all staff and students notified in advance.

The Bushfire Preparedness Matrix in Table 3 provides a guide of monitoring actions to be completed during the Bushfire Danger Period to allow situational awareness of potential bushfires and triggers for shelter in place or evacuation. This preparedness matrix and other supporting information is also contained within the Bushfire emergency evacuation poster plan in Appendix A.

Table 3: Bushfire Preparedness Matrix

ACTION	NO RATING	MODERATE	HIGH	EXTREME	CATASTROPHIC
Facility Manager or delegate to monitor Emergency WA / or DFES website or ABC Radio for fire incidents		Min. 1 pm	Min. 1 pm, 3 pm	Min. 9 am, 11 am, 1 pm, 3 pm (or more frequently if fire event in locality) Facility closure when FBI≥75 and on advice from DFES.	Facility closed
Complete building preparedness checks			By 10 am	By 8 am Facility closure when FBI≥75 and on advice from DFES.	
Additional controls – Total Fire Ban	In the event of a Total Fire Ban being declared for the area in which the facility is located the Facility Manager or delegate should check the DFES Emergency WA website (https://www.emergency.wa.gov.au/) at 9 am, 11 am, 1 pm, 3 pm (or more frequently if fire event in locality).				

The Shire of Serpentine Jarrahdale and DFES have the ability to put in place Total Fire Bans (TFB) based on the predicted extreme fire weather for any part of a day. The TFB is announced by DFES and with information to be found on their website[4] or call the TFB hotline on 1800 709 355.

[3] http://www.bom.gov.au/wa/forecasts/fire-danger.shtml or https://www.emergency.wa.gov.au/#firedangerratings

[4] https://www.emergency.wa.gov.au/

5. Emergency Procedures

The primary bushfire management action is **EARLY CLOSURE OF THE CHILDCARE CENTRE UNDER EXTREME (FBI≥75 AND ON ADVICE BY DFES) and CATASTROPHIC FIRE DANGER RATINGS.**

Procedures for evacuation and shelter-in-place are below. Any direct and specific evacuation messages regarding this site from DFES or other emergency personnel will override these procedures.

5.1 Evacuation

The primary action in the event of a bushfire impacting the Childcare Centre is to **EVACUATE OFF-SITE (ONLY IF THE FIRE IS WITHIN VEGETATION TO THE SOUTH OF ORTON ROAD AND TIME TO BUSHFIRE ARRIVAL IS GREATER THAN 60 MINUTES OR AS OTHERWISE ADVISED BY EMERGENCY SERVICES).**

If off-site evacuation becomes a viable option, the recommended evacuation point is Beenyup Primary School, approximately a 350 m walk to the north (refer to Appendix A for preferred route).

A bus contractor must be placed on standby to ensure that there is an alternative option for evacuation available in circumstances where evacuation to the maintained oval within the Beenyup Primary School grounds is not deemed safe and evacuation to an alternative off-site location can be undertaken safely as advised by DFES.

5.1.1 Evacuation trigger

In the event of a bushfire occurring within the area, the trigger to enact **EVACUATION PROCEDURES OCCURS WHEN DFES ISSUE A WATCH & ACT ALERT FOR THE AREA IN WHICH THE CHILDCARE CENTRE IS LOCATED AND THE FIRE IS WITHIN VEGETATION TO THE SOUTH OF ORTON ROAD AND THERE IS SUFFICIENT TIME TO EVACUATE SAFELY.**

On the issue of this alert, the relevant actions in Table 4 are to be undertaken.

5.2 Shelter-in-place

In the event of bushfire impacting the Childcare Centre and there has been insufficient time to safely evacuate the children and staff, all occupants will be required to **SHELTER-IN-PLACE** due to the vulnerable nature of the patrons of the facility and the potential time to evacuate.

The Childcare Centre is located in an area subject to a Bushfire Attack Level (BAL) rating of BAL-12.5. The building will be constructed to BAL-19 standard to provide appropriate protection from bushfire attack.

5.2.1 Shelter-in-place triggers

In the event of a bushfire occurring within the area, the trigger to enact **SHELTER-IN-PLACE PROCEDURES OCCURS WHEN DFES ISSUE:**

- **A WATCH & ACT ALERT FOR THE AREA IN WHICH THE CHILDCARE CENTRE IS LOCATED AND THE FIRE IS WITHIN ANY VEGETATION TO THE EAST OF LAWRENCE WAY, NORTH OR WEST OF THE SITE;**

- **A WATCH & ACT ALERT FOR THE AREA IN WHICH THE CHILDCARE CENTRE IS LOCATED AND THE FIRE IS WITHIN VEGETATION TO THE SOUTH OF ORTON ROAD AND THERE IS INSUFFICIENT TIME TO EVACUATE SAFELY; OR**
- **AN EMERGENCY WARNING ALERT FOR THE AREA IN WHICH THE CHILDCARE CENTRE IS LOCATED.**

On the issue of these alerts, the relevant actions in Table 4 are to be undertaken.

5.3 Bushfire warning system and alerts

The following actions Table 4 are to be undertaken in addition to the Bushfire Warning instructions issued by DFES.

Off-site evacuation is always safer, provided adequate time is available to complete it safely. Confirm with Lead Agency (DFES or other Emergency Service) prior to evacuating and follow all directions. Sheltering on site is a last resort option, where there is inadequate time to evacuate the site safely.

Table 4: Evacuation process

ALERT	DESCRIPTION	ACTION
Advice	A fire has started but there is no known danger, this is general information to keep you informed and up to date with developments.	• If a fire is spotted, report immediately to 000 and then Facility Manager; • Establish regular communication between the Facility Manager or delegate for the facility and all staff, contractors and visitors to provide awareness of potential bushfire threat; • Facility Manager or delegate to inform parents/guardians of the bushfire threat and advise them not to attend the Childcare Centre and to keep updated with the DFES advice via Emergency WA websites; and • Continually monitor DFES alerts for change in conditions and advice and prepare for evacuation.
Watch and Act	There is a possible threat to lives and homes. Conditions are changing, you need to leave the area or prepare to actively defend.	WATCH AND ACT **WITH FIRE IN VEGETATION TO THE SOUTH OF ORTON ROAD AND THERE IS SUFFICIENT TIME TO EVACUATE SAFELY** • If a fire is spotted, report immediately to 000 and then Facility Manager; • Request information from DFES regarding bushfire time to arrival and if off-site evacuation to the Beenyup Primary School should be undertaken; • Facility Manager or delegate to nominate a sole liaison officer to contact DFES immediately to determine appropriate course of action and inform all staff, contractors and visitors; • All Occupants to stay indoors and prepare for evacuation; • Facility Manager or delegate to advise on evacuation to offsite location; and • All visitors and non-essential contractors to be asked to leave the facility if safe to do so. WATCH AND ACT **WITH FIRE IN VEGETATION TO THE SOUTH OF ORTON ROAD AND THERE IS INSUFFICIENT TIME TO EVACUATE SAFELY** • Follow the steps outlined below for WATCH AND ACT WITH FIRE IN VEGETATION TO THE EAST OF LAWRENCE WAY, NORTH OR WEST OF THE SITE WATCH AND ACT **WITH FIRE IN VEGETATION TO THE EAST OF LAWRENCE WAY, NORTH OR WEST OF THE SITE** • Facility Manager or delegate to contact 000 to inform shelter in place has been enacted and request further instructions; • Facility Manager to ensure all occupants are located indoors, onsite within the Shelter In Place building (within a room(s) with two exits (with at least one of these exits leading outside), furthest from the fire front); • Ensure all windows/doors are closed; • All flammable material and equipment are removed away from windows, doors and air-conditioner units; and • Instruct all staff to prepare the facility and occupants for potential bushfire impacts.

ALERT	DESCRIPTION	ACTION
Emergency Warning	You are in danger as your area will be impacted by fire. You need to take immediate action to survive. Listen carefully as you will be advised whether you can leave the area or if you must shelter where you are as the fire burns through your area. An emergency warning may be supported with a siren sound called the Standard Emergency Warning Signal (SEWS). These factors should be reviewed on a regular basis as they may change at any time and without notice.	• Facility Manager or delegate to contact 000 to inform shelter in place has been enacted and request further instructions; • Facility Manager to ensure all occupants are located indoors, onsite within the Shelter In Place building (within a room(s) with two exits (with at least one of these exits leading outside), furthest from the fire front); • Ensure all windows/doors are closed; • All flammable material and equipment are removed away from windows, doors and air-conditioner units; and • Instruct all staff to prepare the facility and occupants for potential bushfire impacts.
All clear	The danger has passed, and the fire is under control, but you need to remain vigilant in case the situation changes. It may still not be safe to return.	• If a fire is spotted, report immediately to 000 and then Facility Manager; and • Remain vigilant and ensure regular communication is established between the Facility Manager or delegate and all occupants to confirm personal locations and consider evacuation strategies in the event of a change in warning level. • Facility Manager to contact parents/guardians and advise them not to attend the Childcare Centre unless DFES advice indicates otherwise.

Where there is sufficient time to evacuate safely off-site evacuation is to occur as follows (or otherwise if advised by emergency services):

- All occupants are to assemble ready for evacuation with youngest children to leave first;
- All occupants are to relocate on foot to the off-site Evacuation Location, currently nominated as the Beenyup Primary School;
- Allow for 60 minutes to assemble all occupants (including children, staff and visitors) and travel by foot to the Beenyup Primary School. This is a conservative estimate that allows for fire detection, pre-movement, movement and evacuation as per the Australia Fire Engineering Guidelines (ABCB, 2021). Refer to section 1.1 of this BEEP for details of timings this estimate has been based on. Obtain further advice from DFES or the local emergency services once at the Beenyup Primary School.

In circumstances where evacuation to the maintained oval within the Beenyup Primary School grounds is not deemed safe, all occupants are to leave the site via bus in the direction to the nominated evacuation centre as advised by emergency services. Evacuation well in advance of a fire's predicted arrival time is safer than remaining on-site.

6. Recovery

Following a bushfire emergency event impacting on the Childcare Centre, the following actions should be undertaken:

- Ensure the safety of all people and seek medical assistance for those requiring it;
- If off-site evacuation occurred, no person should re-enter building until it is deemed safe to do so (this may be advised by emergency services and power/gas supply technicians);
- Follow the directions of emergency services personnel at all times;
- The fire warden (or person responsible) to arrange the movement of occupants back to the facility;
- All occupants are to be accounted for on their return;
- Inform the police/emergency service of the return of persons to the Childcare Centre;
- Review the Emergency Evacuation Plan for effectiveness, make note of weaknesses and amend as necessary; and
- In the event of the Childcare Centre being impacted by a bushfire, critical incident stress support should be provided to all staff, children and parents/guardians.

7. References

ABCB, 2014, Design and Construction of Community Bushfire Refuges: Information Handbook

Australian Building Codes Board (ABCB). 2021. *Australian Fire Engineering Guidelines*. ABCB.

Eco Logical Australia. 2024. Bushfire Management Plan. Development Application. Childcare Centre – Lot 631 (108) Lawrence Way, Byford 6122. Prepared for Planning Solutions.

Western Australian Planning Commission (WAPC). 2021. Guidelines for Planning in Bushfire Prone Areas Version 1.4 (including appendices), WAPC, Perth.

Western Australian Planning Commission (WAPC). 2019. A guide to developing a Bushfire Emergency Evacuation Plan, October 2019

Appendix A : Bushfire Emergency Evacuation Poster Plan

1. Location details

Facility type:

- Childcare Centre

Location:

- Lot 631 (108) Lawrence Way, Byford, Western Australia

Infrastructure:

- A Childcare Centre and associated outdoor facilities.

Occupation / Visitation (number of people):

- Maximum staff and students: 125 people + some visitors

Access:

- Maive Street

Fire Weather Forecast Area:

- South West Land Division Fire District
- Swan Coastal South

2. Communications

Mobile:

- Mobile reception is available – however, mobile communications can become unreliable during bushfire/emergency events due to the volume of usage

Landline / NBN:

- Landline number: TBC

Radio:

- ABC: 720 AM

Internet Sites:

- Preparing your Property – https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireFactsheets/DFES_Bushfire_Factsheet-Calendar_for_Preparation.pdf
- Emergency WA – www.emergency.wa.gov.au
- DFES on Facebook - www.facebook.com/dfeswa
- DFES on Twitter - www.twitter.com/dfes_wa

3. Contacts

Fire reporting	000	
Facility Manager	TBC	TBC
DFES (Emergency Information)	13 33 37	
SES (Emergency Assistance)	132 500	
WA Police	000	
WA Ambulance	000	
Bureau of Meteorology (BoM) Recorded Information	1300 659 213	

4. Evacuation preparedness

The Bushfire Preparedness Matrix provides a guide of monitoring actions to be completed during the Bushfire Danger Period to allow situational awareness of potential bushfires and triggers for shelter in place or evacuation. Additional preparedness procedures to be enacted at certain periods of the year are provided in the BEEP report.

The FDR indicates the potential level of danger should a bushfire start, providing information so that action can be taken to protect lives from the potentially dangerous impacts of bushfires. During the Bushfire Danger Period the forecast FDR for the following day is typically released around 4pm but can be changed as weather conditions unfold. The current and predicted FDR, for the following day, are available via the DFES and BoM websites.

On Extreme (FBI≥75 and on advice by DFES) and Catastrophic FDRs, the Childcare Centre will be closed.

ACTION	NO RATING	MODERATE	HIGH	EXTREME	CATASTROPHIC
Facility Manager or delegate to monitor Emergency WA / or DFES website or ABC Radio for fire incidents		Min. 1 pm	Min. 1 pm, 3 pm	Min. 9 am, 11 am, 1 pm, 3 pm (or more frequently if fire event in locality); and Facility closure when FBI≥75 and on advice from DFES.	Facility closed
Complete building preparedness checks			By 10 am	By 8 am Facility closure when FBI≥75 and on advice from DFES.	
Additional controls – Total Fire Ban	In the event of a Total Fire Ban being declared for the area in which the facility is located the Facility Manager or delegate should check the DFES Emergency WA website (https://www.emergency.wa.gov.au/) at 9 am, 11 am, 1 pm, 3 pm (or more frequently if fire event in locality).				

5. Evacuation triggers

The primary evacuation option is to **Evacuate Off-Site**.

If off-site evacuation is a viable option, the recommended evacuation point is the **Beenyup Primary School Oval**, approximately 350 m walk to the north.

The secondary option is to **shelter-in-place** within the Childcare Centre Building if there is insufficient time to safely evacuate the children and staff.

SEE EVACUATION DECISION MATRIX (OVERLEAF) FOR TRIGGERS AND PROCEDURES.

6. Evacuation Procedures

Actions for offsite evacuation and shelter-in-place have been aligned to triggers associated with bushfire warnings and are detailed in the **evacuation decision matrix (overleaf)**.

Any direct and specific evacuation messages regarding this site from DFES or other emergency personnel will override these procedures.

7.Children and staff welfare during shelter in place

- Staff will be in charge of onsite children welfare. Serious medical needs will require emergency response via 000.

8. Building Preparedness Checks

- Include such tasks as ensuring reduced fuel loads around buildings, routine maintenance is up to date including cleaning of gutters, fire breaks are in place, and water supply is available.
- Detailed information and checklists are available on the DFES website including the 'The Homeowner's Bushfire Survival Manual' and the 'Fire Chat Bushfire Preparedness Toolkit' published by DFES https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES_Bushfire-Homeowners_Survival_Manual.pdf

  https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES-Fire-Chat-Bushfire-Preparedness-Toolkit.pdf; and
- Additional preparedness procedures to be enacted at certain period of the year are provided in the BEEP report.

9. What to do if caught in a bushfire

The following provide current guidelines* on what to do if caught in a bushfire in a building or on foot. Each requires a different response involving critical decisions for your survival.

What to do if caught in a bushfire IN A BUILDING

Outside your building

- Ensure you drink plenty of water so you do not dehydrate
- Block your downpipes, (a sock full of sand/soil will help) and fill your gutters with water
- Move flammable items such as outdoor furniture, doormats
- Gas cylinders should have the valve facing away from the building
- Do not stand on the roof with a hose. In bush fires, often more people are injured by falling from roofs than suffering burns
- Patrol the outside of the building, putting out any embers and spot fires that may start. An ember or spark can reach your home hours before the fire front arrives
- Just before the fire arrives, wet down timber decks and gardens close to the building
- Move any firefighting equipment to a place where it will not get burnt.

Inside your building

- Continue to drink water so you do not dehydrate
- Close doors, windows, vents, blinds and curtains to prevent flames, smoke and embers from entering
- Put tape across the inside of the windows so they stay in place if they break
- Shut off gas at the meter or bottle
- Move furniture away from the windows to prevent any embers that enter the building from igniting
- Fill sinks, bath and buckets with water for putting out any fires that may start inside
- Place wet towels around window and door edges to stop smoke and embers from entering
- Put a ladder next to the access hole to the roof space so you can check for spot fires.

During the fire

- When the fire arrives, go inside to protect you from the radiant heat
- Ensure you have torches ready as it is likely to become completely dark and you will not be able to see
- Patrol the inside of the building, including the roof space for sparks and embers
- Remember – if your life is at risk, call Triple Zero (000) immediately.

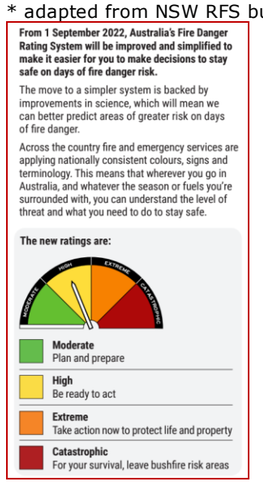
After the fire

- Once the fire has passed, you may need to patrol the property for hours. Go outside and put out any part of the building which is alight.
- An ember or spark from a fire can impact on a building many hours after the main fire front has passed and small spot fires can quickly get out of control.

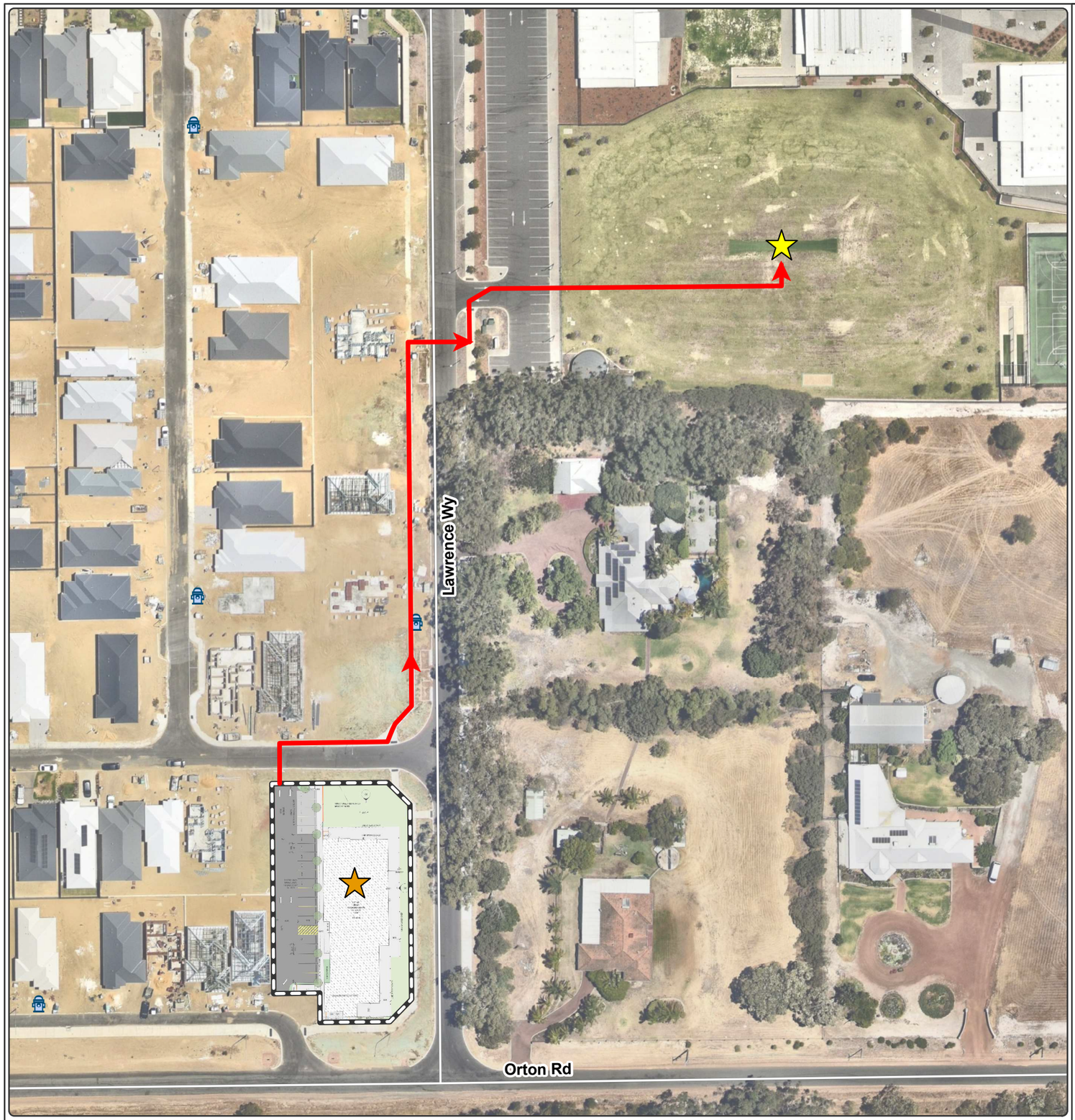
What to do if caught in a bushfire ON FOOT/ IN VEHICLE

- Try to move on to bare or burnt ground at least 100 m from where fire is likely to burn, if this is not feasible find the largest bare or burnt ground possible
- Do not run uphill or away from the fire unless you know a safe refuge is able to be reached before the fire arrives. Try and position yourself downhill of the on-coming fire.
- Move across the slope out of the path of the fire front and work your way downslope towards the back of the fire or onto burnt ground.
- Do not attempt to run through flames unless you can see clearly behind them. This generally means that the flames are less than 1 metre high and less than 1 to 2 metres deep at the back or on the flanks of the fire.
- Lulls in the fire often result in the flames in these parts being low enough to step or run through to the burnt ground beyond.
- When conditions become severe use every possible means to protect yourself from radiation. On bare ground cover yourself, use wheel ruts, depressions, large rocks or logs to give protection.
- Take refuge in ponds, running streams or culverts, but behind solid objects such a rock
- Remain calm and do not run blindly from the fire. If you become exhausted, you are much more prone to heat stroke and you may easily overlook a safe refuge. Consider an alternative course of action.

* adapted from NSW RFS bushfire training modules.



DFES warning and Fire Danger Rating information



Bushfire Emergency Evacuation Plan

Subject site
Evacuation route (~271m)
Hydrant
Off-site evacuation
Shelter-in-place

0 12.5 25 50
Metres

Datum/Projection:
GDA 1994 MGA Zone 50
22PER4135-OK Date: 14/03/2024

N

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ALERT	DESCRIPTION	ACTION
Advice	A fire has started but there is no known danger, this is general information to keep you informed and up to date with developments.	If a fire is spotted, report immediately to 000 and then Facility Manager; Establish regular communication between the Facility Manager or delegate for the facility and all staff, contractors and visitors to provide awareness of potential bushfire threat; Facility Manager or delegate to inform parents/guardians of the bushfire threat and advise them not to attend the Childcare Centre and to keep updated with the DFES advice via Emergency WA websites; and Continually monitor DFES alerts for change in conditions and advice and prepare for evacuation.
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Emergency Warning	You are in danger as your area will be impacted by fire. You need to take immediate action to survive. Listen carefully as you will be advised whether you can leave the area or if you must shelter where you are as the fire burns through your area. An emergency warning may be supported with a siren sound called the Standard Emergency Warning Signal (SEWS). These factors should be reviewed on a regular basis as they may change at any time and without notice.	Facility Manager or delegate to contact 000 to inform shelter in place has been enacted and request further instructions; Facility Manager to ensure all occupants are located indoors, onsite within the Shelter in Place building (within a room(s) with two exits (with at least one of these exits leading outside), furthest from the fire front); Ensure all windows/doors are closed; All flammable material and equipment are removed away from windows, doors and air-conditioner units; and Instruct all staff to prepare the facility and occupants for potential bushfire impacts.
All clear	The danger has passed, and the fire is under control, but you need to remain vigilant in case the situation changes. It may still not be safe to return.	If a fire is spotted, report immediately to 000 and then Facility Manager; and Remain vigilant and ensure regular communication is established between the Facility Manager or delegate and all occupants to confirm personal locations and consider evacuation strategies in the event of a change in warning level. Facility Manager to contact parents/guardians and advise them not to attend the Childcare Centre unless DFES advice indicates otherwise.

Appendix B : DFES Fire Danger Rating and Warning Systems

Refer to DFES Fire Chat Bushfire Preparedness Tool kit and DFES website for further details[5]

1 Australian Fire Danger Ratings System

The Fire Danger Ratings describe the potential danger level you could face if a bushfire starts, while the Bushfire Warnings System provides information about what to do during a bushfire.

Fire Danger Ratings provide you with important information so you can take action to protect yourself and others from the potentially dangerous impacts of bushfires.

Before a bushfire

Fire Danger Rating	Fire behaviour	Action required
Moderate Plan and prepare	Most fires can be controlled	Stay up to date and be alert for fires in your area
High Be ready to act	Fires can be dangerous	Decide what you will do if a fire starts
Extreme Take action now to protect life and property	Fires will spread quickly and be extremely dangerous	Put your bushfire plan into action (see pages 11 and 17)
Catastrophic For your survival, leave bushfire risk areas	If a fire starts and takes hold, lives are likely to be lost	Homes cannot withstand fires in these conditions. Stay safe by going to a safer location early in the morning or the night before.

When there is minimal risk, Fire Danger Ratings will be set to **'No Rating'**.
At this level, fires are not expected to spread in a fast or life-threatening way.

[5]https://publications.dfes.wa.gov.au/publications/bushfire-preparedness-toolkit

2 Australian Warning System – Bushfire

During a bushfire, emergency services will issue a warning if the fire is impacting, or likely to impact the community.

There are three levels of warning. These change to reflect the increasing risk to your life or property, and the decreasing amount of time you have until the fire arrives.

During a bushfire

EMERGENCY WARNING

An out of control fire is approaching fast. There is a threat to lives and homes and you need to take immediate action to survive.

You must seek shelter or leave now if it is safe to do so.

WATCH AND ACT

If your plan is to leave, leave now. If your plan is to stay, get ready to actively defend.

Only stay and defend if you are mentally and physically prepared.

ADVICE

A fire has started but there is no immediate threat to lives or homes. Stay alert and watch for signs of fire.

Be aware and keep up to date.

Don't wait for a text message or a knock on the door. Make your own decision on when to leave.

Stay informed at emergency.wa.gov.au

Emergency WA is the primary and most up to date source of emergency information for:

- Current warnings
- Fire Danger Ratings
- Total Fire Bans

See back cover for other information sources.

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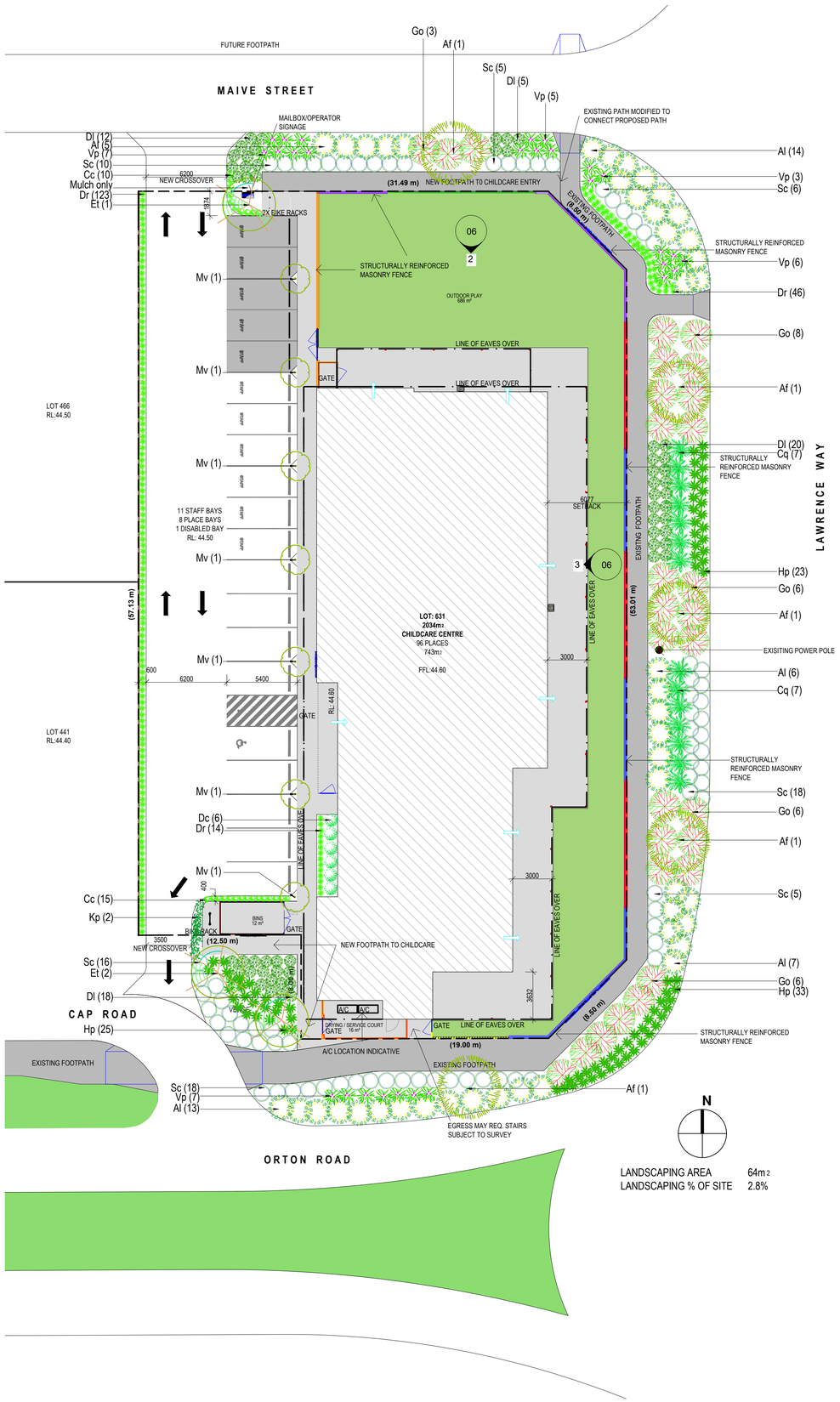
1300 646 131
www.ecoaus.com.au



LANDSCAPING AREA 64m²
LANDSCAPING % OF SITE 2.8%

PLANT SCHEDULE AND SYMBOL LEGEND

Code on plan	Symbol	Botanic Name	Mature height x width	Minimum installation size	Number
TREES					
Af		Agonis flexuosa	6m x 5m	30 Litre	5
Et		Eucalyptus todtiana	6m x 4m	30 Litre	3
Mv		Melaleuca viridflora	5m x 2m	30 Litre	7
SHRUBS					
Cq		Calothamnus quadrifidus prostrate	60cm x 2m	13cm	14
Dc		Darwinia citriodora	1.5m x 1m	13cm	6
Vp		Verticordia plumosa	60cm x 1m	13cm	28
GRASSES					
Cc		Conostylus candicans	30cm x 50cm	14cm	25
Dr		Dianella revoluta 'Revelation'	50cm x 50cm	14cm	183
GROUND COVER					
Al		Acacia lasiocarpa prostrate	30cm x 2m	13cm	45
Dl		Dampiera linearis 'Blue'	30cm x 1m	13cm	55
Go		Grevillea obtusifolia 'Gin Gin Jewel'	50cm x 2.5m	13cm	29
Hp		Hemiandra pungens	30cm x 1m	13cm	81
Kp		Kennedia prostrata	10cm x trailing to 3m	13cm	2
Sc		Scaevola calliptera	40cm x 1.2m	13cm	78
TOTAL PLANTS					561

PLANTING SPECIFICATIONS

1. SPECIFIED PLANT SPECIES HAVE BEEN SOURCED FROM BENARA NURSERY, DOMUS NURSERY AND ELLENBY TREE FARM STOCK LISTS. SHOULD PLANT SPECIES BE UNAVAILABLE AT TIME OF PLANTING, CONTACT DESIGNER FOR SUBSTITUTIONS.

2. ALL PLANTING AREAS ARE TO BE PREPARED AND PLANTED IN ACCORDANCE WITH INDUSTRY BEST PRACTICE, TYPICAL DRAWINGS INCLUDED IN THIS PLAN SET AND THE INSTRUCTIONS BELOW.

A. PREPARATION OF SOIL IN GARDEN BED AREAS:
I. REMOVE ALL TRACES OF BUILDERS' MATERIAL FROM PLANTING AREAS INCLUDING RUBBLE, SAND, MORTAR AND ALL OTHER EXTRANEOUS MATERIAL.
II. REMOVE ALL WEEDS IN GARDEN BED AREAS BY SPRAYING WEEDS WITH A STANDARD INDUSTRY HERBICIDE FOLLOWING MANUFACTURER'S SPECIFICATIONS AND LEAVE FOR RECOMMENDED TIME.
III. REMOVE DEAD PLANT MATTER AFTER TIME SPECIFIED ON HERBICIDE PRODUCT.
IV. UNDERTAKE SOIL IMPROVEMENT SUITABLE FOR NATIVE PLANTS.

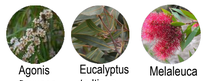
B. PLANTING
I. PLANT TREES AS SPECIFIED ON DRAWING 'TYPICAL TREE PLANTING' AND INSTALL TREE ROOT BARRIERS AROUND TREES WITHIN SITE.
II. PLANT SHRUBS (INCLUDING GRASSES AND GROUND COVERS) AS SPECIFIED ON DRAWING 'TYPICAL SHRUB PLANTING' AND WATER IN THOROUGHLY.

C. MULCH
I. AFTER PLANTING, APPLY FINE GRADE PLAY GROUND APPROVED PINE BARK WOOD CHIPS WITHIN SITE BOUNDARY AND CHUNKY PINE BARK WOOD CHIPS ON THE VERGE TO A MINIMUM DEPTH OF 80MM (MAXIMUM 100MM) TO PLANTING BEDS, KEEPING MULCH CLEAR OF PLANT STEMS.
II. CHECK MULCH IS FREE OF WOOD SLIVERS AND EXTRANEOUS MATERIAL.
III. TIDY AND GRADE MULCH AFTER APPLICATION.

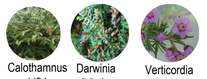
IRRIGATION SPECIFICATIONS

1. ALL GARDEN BEDS TO BE IRRIGATED WITH SUB-MULCH DRIP SYSTEM AND AUTOMATIC CONTROLLER WITH RAIN SENSOR.
2. WATER SUPPLY IS SCHEME WATER.
3. IRRIGATION LAYOUT BY LANDSCAPE INSTALLER.

TREE VARIETIES

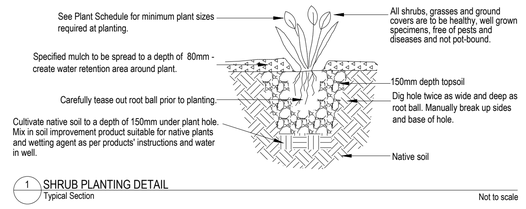


SHRUB VARIETIES



GRASS VARIETIES

GROUND COVER VARIETIES



1 SHRUB PLANTING DETAIL
Typical Section — Not to scale

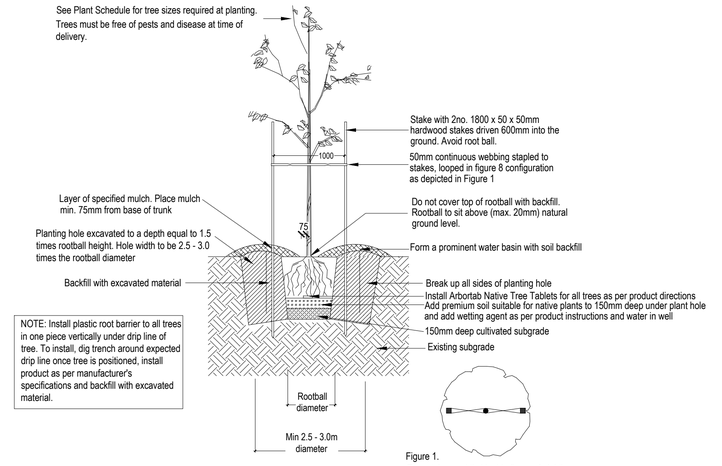


Figure 1.
Tree stakes and tie 'double figure of eight' configuration.

2 TREE PLANTING DETAIL
Typical Section — Not to scale

URBAN Retreat GARDEN DESIGN

revision/issue	description	drawn	checked	date
B	DEVELOPMENT APPLICATION	AC	AC	29.02.2024
A	DEVELOPMENT APPLICATION	AC	AC	14.03.2023

project: PROPOSED BEENYUP GROVE CHILDCARE CENTRE
location: LOT 631 (108) LAWRENCE WAY BYFORD
drawn: AC
checked: AC
description: LANDSCAPE PLAN
scale: 1:200 @ A1
date: 14.03.2023
project no: 22238
dwg no: 01
rev: 02

URBAN RETREAT GARDEN DESIGN
COMMERCIAL AND RESIDENTIAL LANDSCAPE DESIGN SERVICES
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