Metro Outer Joint Development Assessment Panel Agenda

Meeting Date and Time: Tuesday, 20 December 2022; 10:00am

Meeting Number:MOJDAP/220Meeting Venue:Electronic Means

To connect to the meeting via your computer - https://us06web.zoom.us/j/82136279057

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Insert Meeting ID followed by the hash (#) key when prompted - 821 3627 9057

This DAP meeting will be conducted by electronic means (Zoom) open to the public rather than requiring attendance in person.

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Attendance

DAP Members

Mr Eugene Koltasz (Presiding Member) Ms Gabriela Poezyn (A/Deputy Presiding Member) Mr Jason Hick (Third Specialist Member)

Item 8.1

Cr Margaret Thomas (Local Government Member, City of Kalamunda)

Item 8.2

Cr David Bolt (Local Government Member, Shire of Murray) Cr Ange Rogers (Local Government Member, Shire of Murray)

Item 8.3

Cr Vinh Nguyen (Local Government Member, City of Wanneroo) Cr Frank Cvitan (Local Government Member, City of Wanneroo)

Officers in attendance

Item 8.1

Mr Peter Varelis (City of Kalamunda) Mr Andrew Fowler-Tutt (City of Kalamunda) Ms Alisha Kozima (City of Kalamunda)

Item 8.2

Mr Rod Peake (Shire of Murray)
Ms Cherryll Oldham (Shire of Murray)

Item 8.3

Mr Greg Bowering (City of Wanneroo)

Minute Secretary

Mr Stephen Haimes (DAP Secretariat)

Applicants and Submitters

Item 8.1

Mr Jarrod Ross (Taylor Burrell Barnett)
Mr James McCallum (Taylor Burrell Barnett)
Ms Bec Didcoe (Taylor Burrell Barnett)
Mr Glenn Coffey (Hesperia)

Item 8.2

Mr Oliver Basson (Planning Solutions) Mr Pat Allan (Brallgra Pty Ltd)

Item 8.3

Mr Josh Watson (Planning Solutions)

Members of the Public / Media

Nil.

1. Opening of Meeting, Welcome and Acknowledgement

The Presiding Member declares the meeting open and acknowledges the traditional owners and pay respects to Elders past and present of the land on which the meeting is being held.

This meeting is being conducted by electronic means (Zoom) open to the public. Members are reminded to announce their name and title prior to speaking.

2. Apologies

Ms Karen Hyde (Deputy Presiding Member)
Cr Brooke O'Donnell (Local Government Member, City of Kalamunda)

3. Members on Leave of Absence

Nil.

4. Noting of Minutes

Signed minutes of previous meetings are available on the DAP website.

5. Declarations of Due Consideration

The Presiding Member notes an addendum to the agenda was published to in relation to Item 8.2, received from the Shire of Murray on 16 December 2022.

Any member who is not familiar with the substance of any report or other information provided for consideration at the DAP meeting must declare that fact before the meeting considers the matter.

6. Disclosure of Interests

Member	Item	Nature of Interest
Ms Karen Hyde	8.2	Indirect Pecuniary Interest –
		Ms Hyde is an employee of the
		applicant, Taylor Burrell Barnett and
		therefore has a conflict and must
		recuse herself from the meeting.

7. Deputations and Presentations

- 7.1 Mr Jarrod Ross (Taylor Burrell Barnett) presenting in support of the recommendation for the application at Item 8.1. The presentation will address summary of the proposal and background information, outline support for the RAR and recommendation without modification.
- 7.2 Mr Oliver Basson (Planning Solutions) presenting in support of the recommendation for the application at Item 8.2. The presentation will address support of the recommendation for item 8.2, subject to the proposed removal of Conditions 1, 7, 15, 16, 23 and 24, and the modification of Conditions 5 and 22. Some other minor wording modifications are also suggested.



7.3 Mr Nathan Maas (Planning Solutions) presenting in support of the recommendation for the application at Item 8.3. The presentation will address support of the officer's recommendation, and request the amending of Condition 4 and Advice Note 1.

The City of Gosnells, City of Kalamunda and Shire of Murray may be provided with the opportunity to respond to questions of the panel, as invited by the Presiding Member.

8. Form 1 – Responsible Authority Reports – DAP Applications

8.1 4, 12 & 16 (Lots 15, 14 & 18) Courtney Place and 12 (Lot 16) Coldwell Road Wattle Grove

Development Description: Proposed Warehouse/Storage & Incidental

Offices

Applicant: Taylor Burrell Barnett

Owner: Planet Building Products Pty Ltd & Roe 71 Pty

Ltd atf Roe 71 Unit Trust

Responsible Authority: City of Kalamunda DAP File No: DAP/22/02331

8.2 25 (Lot 99) James Street Pinjarra

Development Description: Proposed Child Day Care Centre

Applicant: Planning Solutions

Owner: Cobromin Resourses Pty Ltd

Responsible Authority: Shire of Murray DAP File No: DAP/22/02325

8.3 7 (Lot 2495) Cheriton Drive, Carramar

Development Description: Proposed Child Care Centre

Applicant: Planning Solutions
Owner: Carramar Village Pty Ltd

Responsible Authority: City of Wanneroo DAP File No: DAP/22/02320

9. Form 2 – Responsible Authority Reports – DAP Amendment or Cancellation of Approval

Nil.



10. State Administrative Tribunal Applications and Supreme Court Appeals

	Current SAT Applications								
File No. & SAT DR No.	LG Name	Property Location	Application Description	Date Lodged					
DAP/18/01543 DR 75/2022	City of Joondalup	Lot 649 (98) O'Mara Boulevard, Iluka	Commercial development	02/05/2022					
DAP/22/02148 DR146/2022	City of Rockingham	Lot 53 (No 67) Folly Road, Baldivis	Proposed place of worship (Hindu Temple)	26/08/2022					
DAP/22/02220 DR162/2022	City of Kwinana	Lot 9507 Berthold Street, Orelia	Proposed Child Care Centre	28/09/2022					
DAP/22/02159 DR163/2022	Shire of Murray	No. 630 (Lot 137) Pinjarra Road, Furnissdale	Proposed Petrol Filling Station	28/09/2022					

11. General Business

In accordance with Section 7.3 of the DAP Standing Orders 2020 only the Presiding Member may publicly comment on the operations or determinations of a DAP and other DAP members should not be approached to make comment.

12. Meeting Closure

1915 Pinjarra Road, Pinjarra WA 6208 PO Box 21 Pinjarra WA 6208 T: 08 9531 7777 mailbag@murray.wa.gov.au www.murray.wa.gov.au



16 December 2022

Senior Committee Support Officer Department of Lands and Heritage 140 William Street PERTH WA 6000

Dear Sir/Madam

ADDENDUM: Form 1 - Responsible Authority Report - Item 8.2 on Metro Outer Joint

Development Assessment Panel Agenda for 20 December 2022

(DAP/22/2325)

PROPOSAL: James Street, 25 (Lot 99) Pinjarra – Proposed Child Day Care Centre

It was highlighted in the above Responsible Authority Report (RAR) that at the time it was submitted on 12 December 2022 that the public consultation period was still to conclude on 14 December 2022 and that an addendum outlining any additional submissions received by the close of the advertising period would be provided.

The Shire has received an additional eight submissions since submitting the RAR. A replacement 'Public Consultation' section is set out below and an updated 'Submissions Schedule (Attachment 3) is now attached.

It is also noted that Condition 13 does not reference the latest version of the Emergency Evacuation Plan which is version v4 dated 16 November 2022. A revised version of Condition 13 Should read:

"13. Prior to the development first being occupied the Bushfire Emergency Evacuation Plan

— Operational Document V4 dated 16 November 2022 shall be updated in accordance
Guidelines Section 5.5.4 'Developing a Bushfire Emergency Evacuation Plan' and
implemented to the satisfaction of the local government."

Updated Public Consultation Section:

Public Consultation

As the proposed use is categorised as an 'SA' use in the Residential zone under LPS4 the application was advertised by way of a notice in the local newspaper and on the Shire's website. A sign was place also placed on the site and letters sent to adjacent landowners.

The submission period was open for 21 days, concluding on 14 December 2022. At the close of the advertising period ten submissions had been received from owners of nearby properties with five objecting to the proposal.

Page 1 of 2 ABN: 16 036 156 261

The main concerns raised in the submissions were:

- Corporate child care centres are inconsistent with the objectives of residential zones and should be established in business areas;
- The proposal will impact on the existing residential character and amenity of the area;
- Council policy needs to be changed to reflect expectation of quiet enjoyment of living in a residential area;
- Impact of noise and traffic (including speed);
- · Insufficient car parking;
- · Paid professional reports are not to be trusted;
- Would be happy with a family day care centre.

A summary of the submissions received and the Shire's response to each submission is included in the amended Submission Schedule at **Attachment 3** attached to this addendum.

Yours sincerely

Rod Peake

Director Planning and Sustainability



Proposed Child Day Care Centre Lot 99 (25) James Street, Pinjarra Submissions Schedule (updated on 16 December 2022)

Advertising Closed 14 December 2022

Lan	downers/Occupiers	ssues raised		Off	icer comments
1.	Peter and Norma Glass Landowner Pinjarra (135m north west of subject site) OO22/30840	analysis about noise would not impact the go on to say, all the people living close increased noise and that is acceptable a outcome of the expensand of course suestablishing what	ides all the usual consultant and traffic flow and how it local residents. The experts analysis would indicate, for to the new facility, the traffic will fall into a category and can be managed. The t documents are predictable upport the proponents in will be a considerable ore, needs to be located in a	1.	The application does include supporting technical reports including Transport Impact Statement and Environmental Noise Assessment which generally show that traffic and parking can be adequately managed and the noise impacts of the proposal will likely be contained within the assigned noise levels set out in the Environmental Protection (Noise) Regulations.
		that some retailers in and the scale and obvious. It's worth remember report says a continuous.	e will have a customer base in George Street would envy the impact of the facility is and that just because a paid levelopment won't affect doesn't mean in reality, that	2.	The proposed child care centre proposes a maximum of 100 children at any one time.
		the need for effecti	says in part that it supports we child day care services coundaries provided that the	3.	The proposed child care centre will draw from a catchment beyond the immediate area. Whilst the site is zoned Residential, is directly adjacent



operations are appropriately located and do not impact the character and amenity of the local area. It goes on to say, "to locate child day care services appropriately in relation to their surrounding service area". In my immediate area I'm unable to find a single customer who would use the facility. In fact, apart from a few high school kids I see from time to time, this area is predominantly populated by older aged persons. The customer base that this facility is expected to draw from, is more likely to be derived from newer outlying areas such as Ravenswood and any reasonable analysis would show there would be no customers walking or riding to this facility.

to the edge of the Town Centre zone. Whilst the use will generate additional traffic and activity, the site is located on an access road and even with the additional likely 400 trips per week day will be well within its capacity. Given the existing space for on-street parking additional on-street parking is likely mainly during morning and afternoon peaks. Additional noise will be likely associated with the use however a number of mitigation measures are proposed and the resultant noise will be within the limit of the Environmental Protection (Noise) Regulations. The design of the building has a residential character and scale and well below the scale that could be located on the site acknowledging the Residential RAC0 zoning of the site.

- 4. Earlier this year Joondalup Council changed its policy concerning child care centres in residential areas. Amendments include, child care centres in residential zones having to share a boundary with a non-residential property to provide "at least one boundary" to locate "potential noisegenerating activities such as outdoor play areas and car parking", and be limited to a maximum of 50 children to reduce the size, scale, noise and traffic. The impact of noise and traffic around Childcare Centres in residential areas in Joondalup has been acknowledged and the same issue will be realised if the James Street development is approved.
- 4. Each proposal needs to be considered on its own merit, recognising its own context and applicable planning framework. Policies of another local government are not a relevant consideration to this application.



5. The idea that child care land use is "consistent with the objectives of a residential zone and provides a necessary service to the community", is facilities presented to Council's for approval and we shouldn't expect the residential community to accept any down grade of the character and amenity of existing residential areas.

6. I would like to bring your attention to the last 6. Council meeting of the Bunbury City in which Council rejected a proposal to establish a child care centre in a residential area on Beach Road. The vote was a resounding 8 - 3 defeat for the proponents, who will no doubt appeal. Further investigation of other Council's and decisions concerning the location of child care centres has revealed how problematic it has become for decision makers because they have a responsibility to support any new facility where the location has the correct zoning. Child care centres were once mum and dad operations that looked after five or six kids and I would be happy to see that type of operation at this location. However, the corporate model that is being

This site is zoned Residential RAC0 directly adjacent to the Town Centre zone. A child day care centre is a discretionary use in the Residential zone. The Pinjarra Activity Centre LPP identifies the site within the Mixed-use precinct where there are a number of preferred uses including shop, restaurant/cafe, small bar, art gallery, convenience store, grouped dwellings and multiple dwellings. Under the Planning and Development (Local Planning Schemes) Regulations 2015, one the objectives of a Residential zone is to provide for a range of non-residential uses, which are compatible with and complementary to residential development. Child Day Care Centres are typically considered compatible within a Residential zone, subject to amenity considerations being addressed.

6. Each proposal needs to be considered on its own merit, recognising its own context and applicable planning framework. Policies and decisions of other local government are not a relevant consideration to this application.



		offered goes against the intention and the spirit of the zoning at this site and needs to be located in the business precinct. Council policy needs to be changed to reflect constituents' expectation of, quiet enjoyment, while living in a residential area.	
2.	John Tuckey Landowner (120m north west of subject site) OO22/3136	Objection No and you don't take any notice of what others say anyway it's a done deal! Don't know why you even bother with the process. That would save all ratepayers money and the proponent's time and money. Merry Xmas.	Noted.
3.	Peter Glass Second Submission Land Owner – 41 James Street - (135m north west of subject site) OO22/31448	 Objection We are the owners of 41 James Street and would like to convey our very strong objection to the proposed development of a child care centre at Lot 99 (25) James Street, Pinjarra. The application provides all the usual consultant analysis about noise and traffic flow and how it would not impact the local residents. The experts go on to say, all the analysis would indicate, for people living close to the new facility, the increased noise and traffic will fall into a category that is acceptable and can be managed. The outcome of the expert documents are predictable and of course support the proponents in establishing what will be a considerable operation and therefore, needs to be located in a business district. 	Submission consistent with submission 1.



- 3. This child care centre will have a customer base that some retailers in George Street would envy and the scale and the impact of the facility is obvious. It's worth remembering that just because a paid report says a development won't affect someone's amenity, doesn't mean in reality, that it won't.
- 4. The Shire of Murray says in part that it supports the need for effective child day care services within its municipal boundaries provided that the operations are appropriately located and do not impact the character and amenity of the local area. It goes on to say, "to locate child day care services appropriately in relation to their surrounding service area". In my immediate area I'm unable to find a single customer who would use the facility. In fact, apart from a few high school kids I see from time to time, this area is predominantly populated by older aged persons. The customer base that this facility is expected to draw from, is more likely to be derived from newer outlying areas such as Ravenswood and any reasonable analysis would show there would be no customers walking or riding to this facility.
- 5. Earlier this year Joondalup Council changed its policy concerning Childcare Centres in residential areas. Amendments include, Childcare centres in residential zones having to share a boundary with a non-residential property to provide "at least one boundary" to locate "potential noise-generating activities such as outdoor play areas and car parking", and be limited to a maximum of 50 children to reduce the size, scale, noise and traffic.



The impact of noise and traffic around Childcare Centres in residential areas in Joondalup has been acknowledged and the same issue will be realised if the James Street development is approved.

- 6. The idea that Childcare land use is "consistent with the objectives of a residential zone and provides a necessary service to the community", is inconsistent with the types of Corporate Childcare facilities presented to Councils for approval and we shouldn't expect the residential community to except any down grade of the character and amenity of existing residential areas.
- 7. I would like to bring you attention to the last council meeting of the Bunbury City in which council rejected a proposal to establish a Childcare centre in a residential area on Beach Road. The vote was a resounding 8-3 defeat for the proponents, who will no doubt appeal. Further investigation of other councils and decisions concerning the location of Childcare centres has revealed how problematic it has become for decision makers because they have a responsibility to support any new facility where the location has the correct zoning. Childcare centres were once mum and dad operations that looked after five or six kids and I would be happy to see that type of operation at this location. However, the corporate model that is being offered goes against the intention and the spirit of the zoning at this site and needs to be located in the business precinct. Council policy needs to be changed to reflect constituents' expectation of, quiet enjoyment, while living in a residential area.



4	Stephen and Sharon Close Landowner – - Opposite development site on James Street OO22/31473	1.	Will signage be intrusive?	1.	Signage will be required to be in accordance with the Shire's Signs local planning policy with a signage strategy being provided to the Shire prior to any signage being installed.
		2.	Will security lighting at night pollute the ambience of the surrounding residences?	2.	Any external lighting will be required to comply with the Australian Standard AS4282-2019 Control of the obtrusive effects of outdoor lighting.
		3.	Will five (5) embayed car parks be adequate for drop off and collection of 100 children, what's to stop the street parking in front of residences being used to drop and collect children?	3.	The Traffic Impact Assessment has estimated the 17 onsite bays, five on street bays proposed on Forrest Street along with existing on-street parking, bicycle and pedestrian access are adequate to meet parking demand at peak periods.
		4.	Will the design complement the surrounding residences eg gable roof as opposed to flat?	4.	The building design has been amended to better reflect the existing and intended character of the area. The design replaced the proposed skillion roof with a pitched roof which is more consistent with existing dwellings on adjacent sites. A condition (No. 23) is recommended to further enhance the roof line and building façade character to better reflect the Pinjarra context.
		5.	How will traffic speed be dealt with, will sleeping policeman be installed etc as currently the speed limit seems to be anything from 20 to 80KMH and beyond?	5.	Traffic speeding is controlled by the WA Police. Shire traffic count data indicates a recorded 85 th percentile speed along this portion of James Street at 55km/h with speed slowing closer to George Street with increased volumes



					and activity. Increased activity and on street parking typically have the effect of reducing traffic speed.
5.	June Dowson and Greg Attwood – Opposite development site. Land Owner OO22/31629	1.	We don't have a problem with the child care as such, we just feel that it is not suited to the position it's in, as it is too large - catering for 100 children with 17 staff.	1.	Noted.
		2.	There are only 17 parking bays (with possibly others) which would be insufficient for the staff and parents dropping off and collecting heir children. James Street is a busy street and there would be a problem with children coming and going as there is limited street parking.	2.	See discussion under Access and Car Parking in report.
		3.	As we live directly opposite we are also concerned about the possible use of flood lighting at night which would shine directly into our property and large signage which would be unsuitable for this area.	3.	Any external lighting will be required to comply with the Australian Standard AS4282-2019 Control of the obtrusive effects of outdoor lighting.
6	RE & ER Robertson Land Owners – directly abutting development site OO22/31631	1.	The proposed child care centre would be an asset to Pinjarra and in particular to young couples living within the Murray Shire. It would also increase the income to the Shire by way of increased Shire rates.	1.	Noted
		2.	However we are of the opinion the design has one very bad fault. That its entry to the building for children being delivered for child care should be via Forrest Street not James Street. Parents delivering children to the centre will not park in Forrest Street and will access the James Street entrance.	2.	It is likely that drop off traffic would park in the most convenient location which would likely be either the on-street bays on James Street and the onsite bays before the Forrest Street bays would be used. There is proposed to be a new pedestrian pathway constructed to link the Forest Street bays to the centre entrance.



They will park in James Street which will be chaotic with through traffic and drivers pulling into and out of parking, some coming from the town centre direction will be trying to do 180° turns to park on the centre's side of the road because residents who live on the south west or Pinjarra Road side of James Street already have most of the parking area taken with their own cars. So the drop off and pick parking area and the building entry must be on Forrest Street.

3. The through traffic along James Street will increase in the future as the development on the corner of Pinjarra Road and Carey Street develops further. The area there has the service station. But a drive through bottle shop and take away is proposed as well as other shops.

This will increase traffic on James Street considerably adding to the parking problem and congestion on James Street outside the child care centre if the entry to the centre is not changed to Forrest Street.

- 4. I hope the Shire agree and can convince the developers of the centre to modify the design.
- 5. As units I, 2 and 3 at 27 James Street adjoin 25 James Street boundary where the 17 car parking bays are, there will be some additional noise but as long as this is staff parking only it should be unreasonable.

3. This section of James Street has a traffic volume of around 1,500 vehicles per day. Even with the additional 400 vehicle movements expected per day from the proposed centre the road will still be well within its capacity.

4. Noted

5. Noted



7	Eric Stitt	Object		
	Land Owner – (80m from development	We strongly object to this proposal for a number of reasons.		
	site) OO22/31671	This is not it keeping with the residential nature of the area.	1.	This site is zoned Residential RAC0 directly adjacent to the Town Centre zone. A child day care centre is a discretionary use in the Residential zone. The Pinjarra Activity Centre LPP identifies the site within the Mixed-use precinct where there are a number of preferred uses including shop, restaurant/cafe, small bar, art gallery, convenience store, grouped dwellings and multiple dwellings. Under the Planning and Development (Local Planning Schemes) Regulations 2015, one the objectives of a Residential zone is to provide for a range of non-residential uses, which are compatible with and complementary to residential development. Child Day Care Centres are typically considered compatible within a Residential zone, subject to amenity considerations being addressed.
		We already have high volumes of traffic and this proposal would make it much worse.	2.	This section of James Street has a traffic volume of around 1,500 vehicles per day. Even with the additional 400 vehicle movements expected per day from the proposed centre the road will still be well within its capacity.
		3. Forrest Street has no footpaths and there would be a safety risk to pedestrians with increase in traffic.	3.	It is intended that a pathway would be constructed by the applicant to connect the proposed on-street bays of Forrest Street to the



8	Les and Barbara Giles Land Owners – (38m from development site) OO22/31753	1.	James Street has a very large volume of traffic particularly since the opening of Carey Street and the Liberty Service Station. The street has become a race track down to the Shopping Centre.	1.	building entrance. This requirement is incorporated in recommended condition 5. This section of James Street has a traffic volume of around 1,500 vehicles per day. Even with the additional 400 vehicle movements expected per day from the proposed centre the road will still be well within its capacity. Traffic speeding is controlled by the WA Police. Shire traffic count data indicates a recorded 85th percentile speed along this portion of James Street at 55km/h with speed slowing closer to George Street with increased volumes and activity. Increased activity and on street parking typically have the effect of reducing traffic speed.
		2.	Totally inadequate parking available for the increase due to drop off and pick up of children.	2.	Traffic Impact Statement estimates that based on an 80% driver mode share, 14 car parking bays are required to accommodate 17 staff, plus eight bays or less to accommodate visitors, 22 car parking bays. Seventeen car parks are to be provided on site. The proposal provides five car parking bays on Forrest Street. Forrest Street is in a poor condition and is currently unsuitable to provide access to on-street parking bays therefore is required to be upgraded. The development provides bicycle racks to encourage other means of accessing the site, and given the location of the site adjacent to town core where pedestrian activity is encouraged.



		3.	Noise from vehicle movement, slamming car doors and children would be unacceptable. Units occupied by older residents who are mostly at home during the day would be unfairly impacted by the elevated noise throughout the day.	3.	The Environmental Noise Assessment proposes a number of noise mitigation recommendations and generally shows that noise can be adequately managed within the assigned noise levels set out in the Environmental Protection (Noise) Regulations.
		5.	It is our view a more appropriate area for this development would be vacant land opposite the Pinjarra Primary School. Also more convenient for both school and after school care pick up and drop off.	5.	The current proposal is required to be considered on its merits rather than an alternative proposal.
		6.	The proposal for 100 children is unacceptable. For example City of Melville and Joondalup Council have capped child care centres at 50 care places and forbid such new centres along major highways or busy roads.	6.	Each proposal needs to be considered on its own merit, recognising its own context and applicable planning framework. Policies and decisions of other local government are not a relevant consideration to this application. The Shire's Local Planning Policy does not restrict the number of child care places provided at a particular centre.
		7.	James Street is now a very busy street with traffic ignoring the 50 speed limit which is making it dangerous.	7.	See comments on issue 1 under this submission.
9	Colleen Wan Land Owner – abutting the development site OO22/31755	1.	My only concern with the proposed child care centre is the additional traffic and parking being 17 car parking bays will be allocated to staff. The drop off pickup traffic is of concern plus the noise factor being in an elderly residential area. It is a	1.	This section of James Street has a traffic volume of around 1,500 vehicles per day. Even with the additional 400 vehicle movements expected per day from the proposed centre the road will still be well within its capacity. Traffic



			nightmare getting in and out onto James Street when Festival is on and cars parking almost up to our driveway.		speeding is controlled by the WA Police. Shire traffic count data indicates a recorded 85 th percentile speed along this portion of James Street at 55km/h with speed slowing closer to George Street with increased volumes and activity. Increased activity and on street parking typically have the effect of reducing traffic speed. The Environmental Noise Assessment proposes a number of noise mitigation recommendations and generally shows that noise can be adequately managed within the assigned noise levels set out in the <i>Environmental Protection (Noise) Regulations</i> .
10	Ces and Jenny Brodie-Hall Land Owner – - (76m to development site) OO22/31779	1.	The proposed child care centre is not appropriate for that site.	1.	This site is zoned Residential RAC0 directly adjacent to the Town Centre zone. A child day care centre is a discretionary use in the Residential zone. The Pinjarra Activity Centre LPP identifies the site within the Mixed-use precinct where there are a number of preferred uses including shop, restaurant/cafe, small bar, art gallery, convenience store, grouped dwellings and multiple dwellings. Under the Planning and Development (Local Planning Schemes) Regulations 2015, one the objectives of a Residential zone is to provide for a range of non residential uses, which are compatible with and complementary to residential development. Child Day Care Centres are typically considered compatible within a Residential zone, subject to amenity considerations being addressed.



2.	Traffic and parking on James Street will be
	dangerous. The street has become must busier
	since the service station has been built on the
	corner of Pinjarra Road and Carey Street.
	James Street is one of the main streets of
	Pinjarra.

- 2. This section of James Street has a traffic volume of around 1,500 vehicles per day. Even with the additional 400 vehicle movements expected per day from the proposed centre the road will still be well within its capacity. Traffic speeding is controlled by the WA Police. Shire traffic count data indicates a recorded 85th percentile speed along this portion of James Street at 55km/h with speed slowing closer to George Street with increased volumes and activity. Increased activity and on street parking typically have the effect of reducing traffic speed.
- Ideally the block would be more in keeping as a private residence or over 55 units/single storey as adjacent now.
 - 3. The current proposal is required to be considered on its merits rather than an alternative proposal.
- 4. A neighbour told me that this is not the Council planning??
- 4. Noted. The application will be made by the Joint Development Assessment Panel.
- 5. What would be more inappropriate than a child care centre would be multi storey apartments due to the noise factor and invasion of privacy of the adjoining blocks/neighbours.
 - 5. Noted
- 6. We hope careful consideration will be given to the appropriate use of such a large block, close to town and in a very nice area of Pinjarra.
- 6. Noted.

Bushfire Emergency Evacuation Plan Development Application: Lot 99 (25) James Street, Pinjarra

Brallgra Pty Ltd ATF G.Allan Family Trust

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



DOCUMENT TRACKING

Project Name	Bushfire Emergency Evacuation Plan Development Application: Lot 99 (25) James Street, Pinjarra		
Project Number	22PER3083		
Project Manager	Daniel Panickar		
Prepared by	Maitland Ely		
Reviewed by	Daniel Panickar (BPAD Level 3- 37802)		
Approved by	Daniel Panickar (BPAD Level 3- 37802)		
Status	Draft		
Version Number	v4		
Last saved on	16 November 2022		

This report should be cited as 'Eco Logical Australia 2022. Bushfire Emergency Evacuation Plan . Prepared for Brallgra Pty Ltd ATF G.Allan Family Trust.'

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Brallgra Pty Ltd ATF G.Allan Family Trust (the client) and Planning Solutions.

Disclaimer

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Template 2.8.1

Version control			
Version	Purpose		
v1	Draft – Submission to client		
v2	Draft		
v3	Draft – updated to include revised site plan		
ν4	Draft – updated to include revised site plan		

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1. Facility Details

This Bushfire Emergency Evacuation Plan (BEEP) is for the proposed childcare centre at Lot 99 (25) James Street, Pinjarra within the Shire of Murray 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-12.5.

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 bushfire management action is:

EARLY CLOSURE OF THE FACILITY UNDER CATASTROPHIC FIRE DANGER RATINGS

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

EVACUATE OFF-SITE (ONLY IF 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 facility
Number of buildings:	1
Number of employees:	17 + (additional staff on site for staff changeover, training, etc.)
Number of occupants:	up to 125 (100 children, 17 + staff and some visitors)
Number of vulnerable occupants/with support needs:	100 children
Estimated maximum number of visitors:	TBC

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<u>Description of support needs</u>: 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 north and north east of the site;
- The vegetation to the east is a narrow strip of unmanaged grassland adjacent to the north east corner of the site that runs further north east. This, along with the woodland vegetation located north of site, results in a BAL-12.5 for the childcare centre building;
- Bushfire hazards are separated from the development site by an Asset Protection Zone (APZ)
 and low threat landscaped areas within the site;
- Potential ignition sources are from nearby vehicles using major roads or people accessing the nearby bushland;
- 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:

100 children and 17 staff;

Evacuation timing:

- Time for notification of an approaching bushfire and that evacuation is required –
 10 minutes:
- o Time for assembly and mobilisation of all children and staff 15 minutes;
- Off-site evacuation is Pinjarra Civic Centre approximately 300 m walk south;
- 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;
- o 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.

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 Pinjarra Civic Centre;
- Smoke and heat from a bushfire (particularly in a rapid-onset event) may limit the ability for on-foot evacuation to Pinjarra Civic Centre;
- Given the possibility for multiple bushfire scenarios to affect the proposed Childcare Centre, multiple bushfire risk management measures are proposed, which include:
 - o BAL-12.5 construction with BAL-12.5 exposure;

- APZ that limits building exposure to BAL-12.5;
- o Closure on site based on the highest FDR rating; and
- o 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 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.

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 m² which equals 125 m². The total floor space of the proposed Childcare Centre 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/m²;
- The proposed Childcare Centre building will be built to a BAL-12.5 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 James Street.

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
Chief Fire Warden	ТВС	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	ТВС	Whole of facility	All doors and windows closed; Account for all patrons	ТВС
Gardener/ landscape contractor	ТВС	Outside Grounds	Irrigation system enabled if impact of fire imminent; Maintenance of landscaping as per Section 4 of this BEEP	ТВС

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	Pinjarra	(08) 9531 7111
Murray District Hospital	Local Hospital	(08) 9531 7222
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)

Ensure the landscaped grounds are maintained to the requirements of *Standards for Asset Protection Zones (WAPC, 2021)* with the following items 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;
- o 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;
- o 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.

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:

- o 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;
- o The pressure relief valve should point away from the house;
- o 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' and the 'Fire Chat Bushfire Preparedness Toolkit' published by DFES:

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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.
 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 and APZs 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 websites³.

On Catastrophic FDRs, the proposed childcare centre will be closed with all staff and parents/guardians 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 closed
Complete building preparedness checks			By 10 am	By 8 am	
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 Murray 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 website⁴ 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 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 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 Pinjarra Civic Centre, approximately a 300 m walk to the south (refer to Appendix A for preferred route).

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 NOT WITHIN ADJACENT VEGETATION. 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-12.5 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 ADJACENT VEGETATION; OR
- AN EMERGENCY WARINGIN 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, children, 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 website; 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 NO FIRE IN ADJACENT VEGETATION 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 Pinjarra Civic Centre 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, children, 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 ADJACENT VEGETATION 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; 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.
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	 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; 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
	a regular basis as they may change at any time and without notice.	
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 personnel 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.

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

Eco Logical Australia 2022. *Bushfire Management Plan: Development Application:* Lot 99 (25) James Street, Pinjarra. Prepared for Brallgra Pty Ltd ATF G. Allan Family Trust.

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 99 (25) James Street, Pinjarra, Western Australia

Infrastructure:

A Childcare Centre and associated outdoor facilities.

Occupation / Visitation (number of people):

Maximum staff, students and visitors: 125 people (100 children, 17+ staff and some

Access:

James 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

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 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. 1pm	Min. 1 pm, 3 pm	Min. 9 am, 11 am, 1 pm, 3 pm (or more frequently if fire event in locality)	Facility closed
Complete building preparedness checks			By 10 am	By 8 am	
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 Pinjarra Civic Centre, approximately a 300 m walk south.

The secondary option is to shelter-in-place 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/BushfireManualsand Guides/DFES Bushfire-Homeowners Survival Manual.pdf

https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsand Guides/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 vour 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 enterina
- 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
- 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.

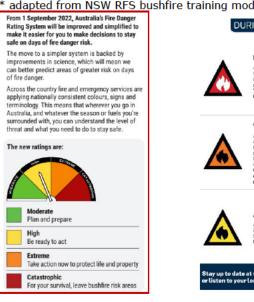
After the fire

- 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

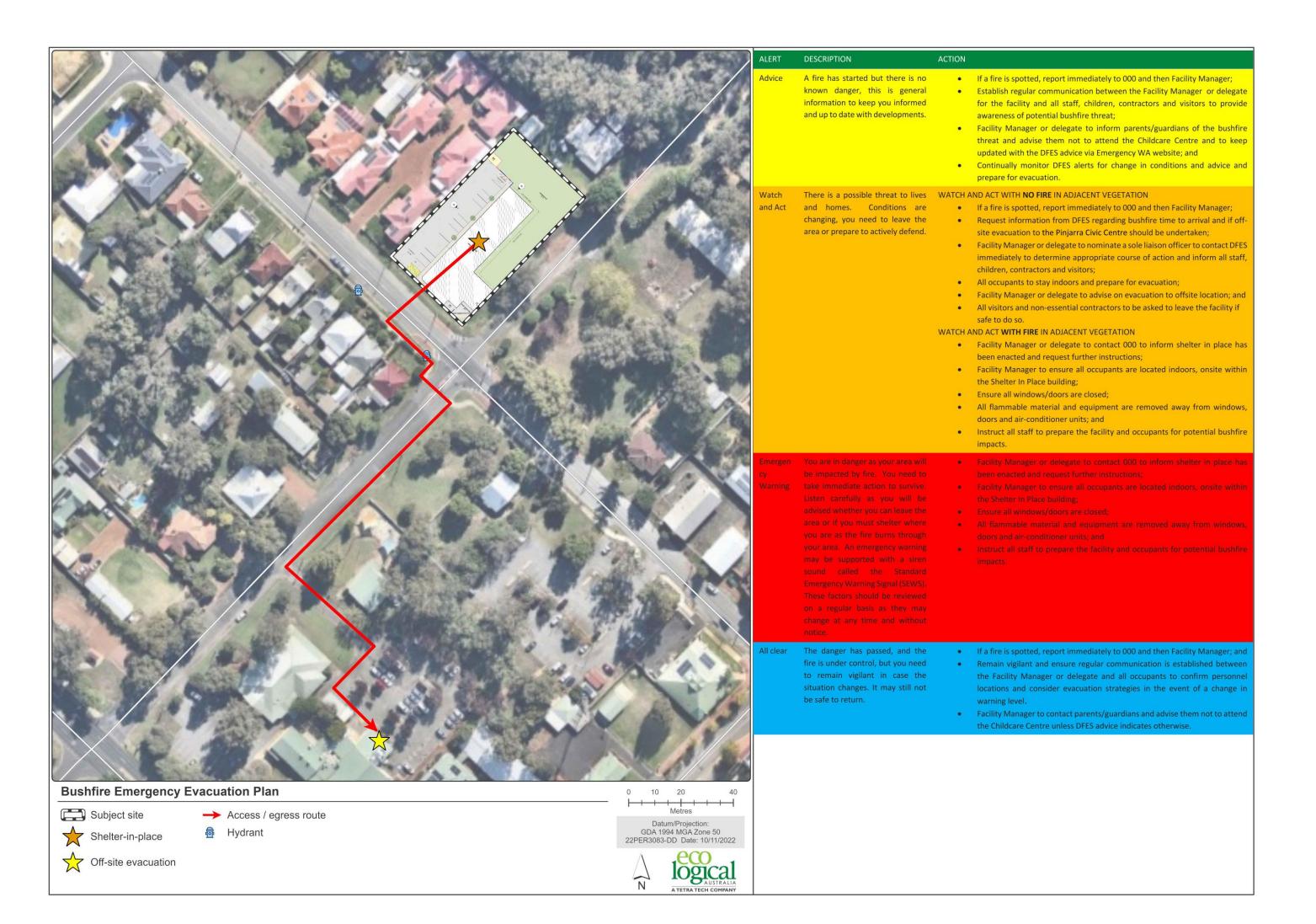
- Try to move on to bare or burnt ground at least 100 m from where fire is likely to burn, if this is not feasible find the largest bare or burnt ground possible
- Do not run uphill or away from the fire unless you know a safe refuge is able to be reached before the fire arrives. Try and position yourself 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



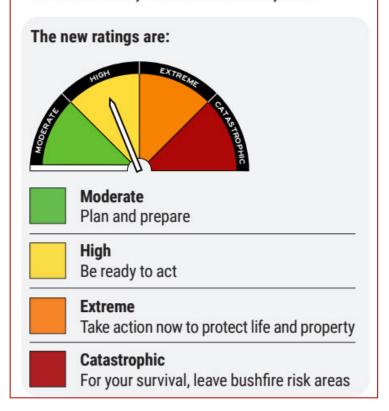
Appendix B: DFES Fire Danger Rating and Warning Systems

Refer to DFES Fire Chat Bushfire Preparedness Tool kit and DFES website for further details⁵

From 1 September 2022, Australia's Fire Danger Rating System will be improved and simplified to make it easier for you to make decisions to stay safe on days of fire danger risk.

The move to a simpler system is backed by improvements in science, which will mean we can better predict areas of greater risk on days of fire danger.

Across the country fire and emergency services are applying nationally consistent colours, signs and terminology. This means that wherever you go in Australia, and whatever the season or fuels you're surrounded with, you can understand the level of threat and what you need to do to stay safe.



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⁵https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES-Fire-Chat-Bushfire-Preparedness-Toolkit.pdf

BUSHFIRE WARNING SYSTEMS:

Similar to a cyclone categorisation tool. The alerts provide information on the severity of bushfires once it has started. The alert level reflects the risk to life and property.

DURING A BUSHFIRE



EMERGENCY WARNING

An out of control fire is approaching very fast. You need to act immediately to survive. If you haven't prepared your home it is too late. You must leave now if it is safe to do so.

WATCH AND ACT

A fire is approaching and is out of control. Put your plan into action. If your plan is to leave, make sure you leave early. Only stay if you are mentally, physically and emotionally prepared to defend your property and you have all the right equipment.

ADVICE

A fire has started but there is no immediate danger. Stay alert and watch for signs of a fire.

When you understand these warning systems, continue to Step 1.





Presentation Request Form

Regulation 40(3) and DAP Standing Orders 2020 cl. 3.5

Must be submitted at least 72 hours (3 ordinary days) before the meeting

Presentation Request Guidelines

Persons interested in presenting to a DAP must first consider whether their concern has been adequately addressed in the responsible authority report or other submissions. Your request will be determined by the Presiding Member based on individual merit and likely contribution to assist the DAP's consideration and determination of the application.

Presentations are not to exceed **5 minutes**. It is important to note that the presentation content will be **published on the DAP website** as part of the meeting agenda.

Please complete a separate form for each presenter and submit to daps@dplh.wa.gov.au

Presenter Details

Name	Jarrod Ross	
Company (if applicable)	Taylor Burrell Barnett	
Please identify if you have	YES □ NO ⊠	
any special requirements:	If yes, please state any accessibility or special requirements:	

Meeting Details

DAP Name	Metro Outer JDAP – No. 220 City of Kalamunda – Shire of Murray– City of Wanneroo
Meeting Date	Tuesday 20 December 2022
DAP Application Number	DAP/22/02331
Property Location	Lots 14, 15 & 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove
Agenda Item Number	8.1

Presentation Details

I have read the contents of the report contained in the Agenda and note that my presentation content will be published as part of the Agenda:	YES ⊠
Is the presentation in support of or against the report recommendation)? (contained within the Agenda)	SUPPORT ⊠ AGAINST □
Is the presentation in support of or against the <u>proposed</u> <u>development</u> ?	SUPPORT ⊠ AGAINST □
Will the presentation require power-point facilities?	YES ⊠ NO □ If yes, please attach



Presentation Content*

These details may be circulated to the local government and applicant if deemed necessary by the Presiding Member. Handouts or power points will not be accepted on the day.

Brief sentence summary for inclusion on the Agenda	The presentation will address: Brief summary of the proposal and background information, outline support for the RAR and recommendation without modification.
	modification.

In accordance with Clause 3.5.2 of the <u>DAP Standing Orders</u>, your presentation request <u>must</u> also be accompanied with a written document detailing the content of your presentation.

Please attach detailed content of presentation or provide below:

The presentation provides a brief summary of the proposal including key background information for DAP members on the Kalamunda Wedge of the Maddington-Kenwick Strategic Employment area, outlines support for the RAR report and the officer recommendation without modification.



Roe Highway Logistics Park

Development Application
Warehouse and Incidental Office
Lots 14, 15 & 18 Courtney Place and
Lot 16 Coldwell Road, Wattle Grove

Presented by: Jarrod Ross (Taylor Burrell Barnett) and Glenn Coffey (Hesperia)

December 2022



Roe Highway Logistics Park



- Estate straddles the City of Gosnells and the City of Kalamunda.
- Stages 1-3 (City of Gosnells) are nearing completion.
- Stage 4 (City of Kalamunda) is rapidly progressing and is anticipated to be complete by 2024.



Stage 4 | Precinct Area



- All land within the City of Kalamunda and bound by Welshpool Road East and Coldwell Road.
- Subject area comprised of former rural residential blocks, the majority of which have now been cleared and graded for development.
- All land parcels are owned by (or working in collaboration with) the developer.



Stage 4 | Ultimate Subdivision Layout



- Ultimate subdivision layout to create industrial superlots.
- Subdivision application approved on 2 November 2022.



Stage 4 | Development Approvals - Warehouses



 Subject site forms one of the developments proposed to occur on the main industrial superlot.



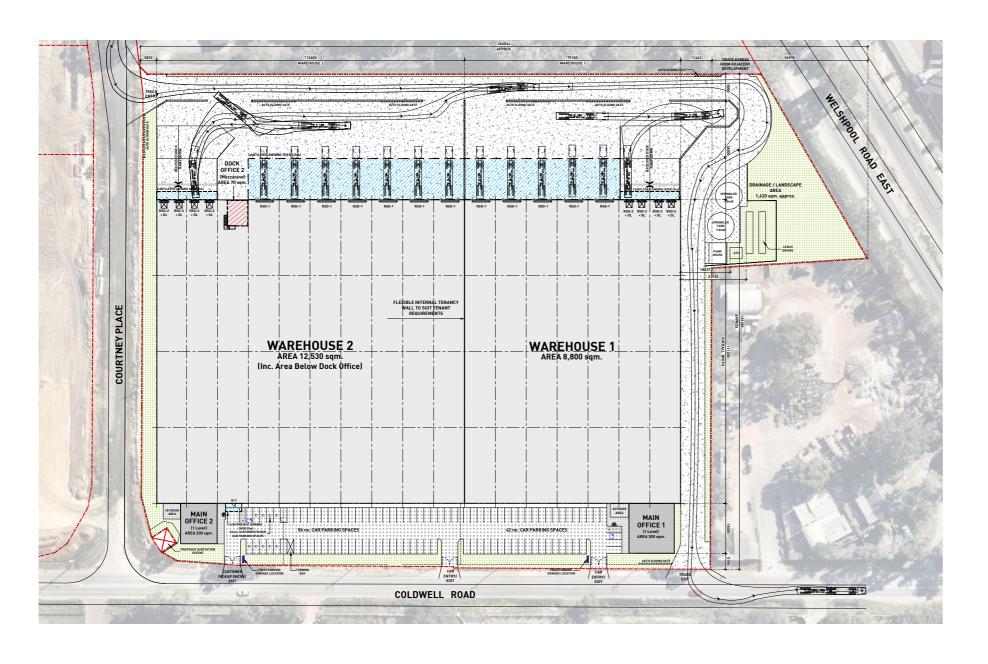
Stage 4 | Development Approvals - Warehouses



- JDAP approved a warehouse in May 2022 over the other proposed industrial superlot, and this is under construction.
- JDAP approved two warehouses to the north of the site in August and November 2022 August.
- An application was lodged in December for the final warehouse north of the subject site.



Traffic and Parking Considerations



- Proposed shared egress point from adjacent site to the north has already been approved by the JDAP (November 2022).
- City officers recommend support for proposed access arrangement subject to the conditions applied.
- Broadly recognised that the Scheme parking ratio is excessive when applied to large scale warehouse uses, and as such variations are generally accepted.



Design Review Panel Recommendations



- Design Review Panel provided a range of recommendations with respect to improvements to the streetscape presentation of the building and amenity for staff.
- City has recommended that these be addressed via Condition 7, which is accepted by the proponent.
- We will work with the officers over the coming weeks to ensure that the final elevations and office design meets their expectations.





Closing

- Appreciate the City's recommendation and the Panel Members time.
- Development proposed is of a high standard and will be an excellent addition to the Roe Highway Logistics Park.
- We have reviewed the conditions of approval and are supportive of them without modification.
- Very happy to answer questions or provide further information.



Presentation Request Form

Regulation 40(3) and DAP Standing Orders 2020 cl. 3.5

Must be submitted at least 72 hours (3 ordinary days) before the meeting

Presentation Request Guidelines

Persons interested in presenting to a DAP must first consider whether their concern has been adequately addressed in the responsible authority report or other submissions. Your request will be determined by the Presiding Member based on individual merit and likely contribution to assist the DAP's consideration and determination of the application.

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Please complete a separate form for each presenter and submit to daps@dplh.wa.gov.au

Presenter Details

Name	Oliver Basson
Company (if applicable)	Planning Solutions
Please identify if you have	YES □ NO ⊠
any special requirements:	If yes, please state any accessibility or special requirements:
	Click or tap here to enter text.

Meeting Details

J	
DAP Name	Metro Outer JDAP MOJDAP/220
Meeting Date	20 December 2022
DAP Application Number	DAP/22/02325
Property Location	Lot 99 (25) James Street
Agenda Item Number	8.2

Presentation Details

I have read the contents of the report contained in the Agenda and note that my presentation content will be published as part of the Agenda:	YES ⊠
Is the presentation in support of or against the report recommendation)? (contained within the Agenda)	SUPPORT ⊠ AGAINST □
Is the presentation in support of or against the <u>proposed</u> <u>development</u> ?	SUPPORT ⊠ AGAINST □
Will the presentation require power-point facilities?	YES □ NO ⊠ If yes, please attach



Presentation Content*

These details may be circulated to the local government and applicant if deemed necessary by the Presiding Member. Handouts or power points will not be accepted on the day.

Brief sentence summary for inclusion on the Agenda	The presentation will address: Speaking in support of the recommendation for item 8.2, subject to the proposed removal of Conditions 1, 7, 15, 16, 23 and 24, and the modification of Conditions 5 and 22. Some other minor wording modifications are also suggested, provided in Attachment 1.
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In accordance with Clause 3.5.2 of the <u>DAP Standing Orders</u>, your presentation request <u>must</u> also be accompanied with a written document detailing the content of your presentation.

Please attach detailed content of presentation or provide below:

Refer enclosed

Level 1, 251 St Georges Tce, Perth WA

Presentation Summary

То:	Metro Outer JDAP F	rom:	Oliver Basson
Attention:	Mr Eugene Koltasz (Presiding Member) Jo	ob No:	8131
Copy to:	DAP Secretariat D	Date:	16 December 2022
Subject:	DAP Meeting Number: MOJDAP/220 Item 8.2 – Proposed child day care centre Lot 99 (25) James Street, Pinjarra		

Planning Solutions acts on behalf of Brallgra Pty Ltd AFT G. Allan Family Trust, in support of the proposed child day care centre development on Lot 99 (25) James Street, Pinjarra (**subject site**). We are pleased to receive the officer recommendation for **approval** and wish to express our support for the proposal.

We have reviewed the conditions and advice notes and consider them to be largely satisfactory. However, we request **modifications** to / **removal** of the following proposed conditions:

- Condition 1 Bike bays and end of trip facilities request removal.
- Condition 5 Detailed civil drawings request modification.
- Condition 7 Environmentally Sustainable Design Report request removal.
- Condition 15 Fencing request removal.
- Condition 16 Signage request removal.
- Condition 22 Bin store roof request modification.
- Condition 23 Design assessment and revised elevations request removal.
- Condition 24 Ceding of land free of cost request removal.

Please refer to **Attachment 1** for a detailed breakdown of the requested modifications to conditions. Please refer below to our request and justification relating to **Conditions 23 and 24.**

OVERVIEW AND MERITS OF THE PROPOSAL

The proposal involves the development of a single-storey, 100 place child day care centre, with associated car parking, landscaping and access. The scale and form of the development respects the context and character of the predominantly single storey residential locality and has been attractively designed in consideration of the Shire's planning framework and design feedback.

The proposal is consistent with the local planning framework, with expert technical reporting confirming it is satisfactory from an acoustic, bushfire and traffic engineering perspective. Substantial verge landscaping is proposed to complement the existing mature street trees on Forrest Street, which are to be retained.

The proposed development has undergone three significant re-designs in response to design feedback from the Shire, and an independent design review undertaken by Mackay Urban Design, at the request of the Shire.

The proponent has been entirely accommodating of the Shire's feedback and requests, hence the numerous designs presented the Shire. However, the commercial functionality of the development required by the proposed operator and the economic feasibility in light of increased building costs also needs to be considered.

We consider the proposed design strikes an appropriate balance between the existing character of Pinjarra and the future expansion of the Pinjarra Activity Centre. We therefore respectfully request the Metro Outer JDAP approves this application.

REMOVAL OF CONDITION 23 REQUIREMENTS (AMENDED DESIGN CONSIDERATIONS)

We respectfully request the deletion of Condition 23.

A context and character assessment and suitable design response for the elevation plans consistent with the plans outlined in Attachment 7 or suitable alternative is to be submitted for approval prior to an application for a building permit. The approved revised plans are to be implemented.

The initial development application was lodged on 7 September 2022, with a design that sought to strike a balance between the prevailing residential and semi-rural context of Pinjarra, the commercial nature and functional components of a child care centre and the desired commercial main street built form anticipated by the Shire's planning framework.

The Shire's amended Local Planning Policy - Pinjarra Activity Centre (ACP) was adopted at the 29 September 2022 OCM, to include the subject site as part of the activity centre area. Following feedback from the Shire that the proposed design was inconsistent with the built form envisioned by the ACP, the applicant, architect and proponent met with Shire in October 2022 to discuss options for a re-design.

A revised development application and facility design was lodged on 10 November 2022, sleeving the car park along the western portion of the subject site and bringing the building to the intersection of James Street and Forrest Street, to achieve the main street built form.

We understand the Shire's officers were still not satisfied with the design, providing independent design review comments from Mackay Urban Design on 23 November 2022. The key area of the design requiring improvement was the buildings relationship to the street and its response to the prevailing residential character of the locality. A final set of revised plans was provided to the Shire on 6 December 2022 in response to the Mackay Urban Design comments. As demonstrated above, the proponent has gone through significant re-designs following various iterations of Shire feedback.

Condition 23 is now requiring further modifications be made to the building elevations. In consideration of Clause 3.6 of the *Development Assessment Panel Practice notes: Making Good Planning Decisions* document relating to "A better proposal", we note the following:

- 1. "It is not a relevant planning consideration that another proposal might provide a better planning outcome. The job of the decision-maker is to determine the application before it not to second guess what could be achieved".
- 2. This position was confirmed in the decision of the Town Planning Appeal Tribunal in SPB (Australia) Pty Ltd and Ors v Town of Claremont [2003] WATPAT 138, at [90], where the Tribunal noted:

"...The function for the Tribunal is not, of course, to determine whether a proposed development is the best possible development, having regard to all issues that might conceivably be placed on the subject site. What the Tribunal must do is to assess whether, in the interests of all orderly and proper planning, and the amenity of the area, and having regard to all applicable planning instruments, a development should be approved. Thus, unless it can be said that a proposed development is contrary to any of those considerations, it should be approved notwithstanding that some may think that a better development of the site might be possible." [emphasis added]

The proposed child day care centre provides an attractive and functional built form, one that is sympathetic to the prevailing residential and semi-rural character of Pinjarra. It has been architecturally designed by Brown Falconer, with building materials and a roof form specifically proposed at the request of the Shire.

Vertical windows, red face brick, weatherboard cladding and a 25 degree Surfmist Colorbond custom orb roof are all design elements and material consistent with the character of Pinjarra. Black trim, downpipes and window frames are proposed to provide a contemporary appearance in consideration of the future activity centre and the commercial nature of a child day care centre.

Simply because there may be another way to design a building, doesn't necessarily mean it's appropriate or should be the case. We have acknowledged the comments from the Shire and independent design review and have proposed the current plans to be determined. We respectfully request Condition 23 be deleted and the JDAP consider and determine the plans that are in front of them.

REMOVAL OF CONDITION 24 - CEDING OF LAND

We respectfully request the deletion of Condition 24:

The land shown on the approved plan as required for a truncation at the corner of Forrest Street and James Street is to be ceded free of cost to the Crown and without payment of compensation prior to the development first being occupied.

We submit that the proposed condition requiring the ceding of land does not meet the Newbury Principles, as outlined below:

- There is no proper planning purpose for the ceding resulting from this development. The proposed building has already been truncated and set back from the street corner in consideration of any future intersection upgrade.
- The requirement to cede the land is not derived from the Shire's Local Planning Scheme No.4 or any local planning policy, including the ACP.
- The requirement does not fairly or reasonably relate to the development. There is no reasonable connection between the upgrade of the Forrest Street / James Street intersection and this development. The proposed child care centre does not necessitate the need for a wider intersection or intersection upgrade.
- The requirement itself is unreasonable, as a need and nexus between the development and the requirement to cede land (for a future intersection upgrade) cannot be established. The development does not facilitate the need for an intersection upgrade and we understand there are currently no plans for the intersection upgrade.

For the reasons outline above, we respectfully request the removal of Condition 24.

SUMMARY

The proposed development is supported by the Shire's officers, is consistent with the relevant planning framework, has been attractively and functionally designed, and will provide important child care services to the Pinjarra locality.

We respectfully request the application for development approval be considered on its merits and the Metro Outer JDAP approve the recommendation provided in the RAR, subject to the proposed removal of Conditions 1, 7, 15, 16, 23 and 24, and the modification of Conditions 5 and 22. Some other minor wording modifications are also suggested, provided in Attachment 1.

Thank you for your time and consideration. I would be pleased to answer any questions from the JDAP members at the meeting on 20 December 2022.

Yours sincerely,

OLIVER BASSON SENIOR PLANNER

Attachment 1 – Schedule of Proposed Modified Conditions

Condition	Proposed modification to condition	Justification
1.	Prior to the submission of an application for a building permit the plans shall be modified to include bicycle bays and end of trip bicycle facilities including showers and lockers within the development site with the facilities implemented in accordance with the Austroads' Guide to Traffic Engineering Practice Part 14: Bicycles and AS 2890.3 Parking Facilities Bicycle Parking to the satisfaction of the local government.	 Request deletion. There is no need for the plans to be modified, given bike parking bays and a shower are already provided on the proposed plans.
5.	Detailed civil engineering drawings and specifications are to be submitted for: a. the upgrade of the section of Forrest Street abutting the site including associated drainage; b. the construction of footpaths within the abutting portions of James Street and Forrest Street and footpath links to connect the existing path network on the south western side of James Street; c. on-street parking bays; and d. the site crossover with a satisfactory separation distance to the existing power pole achieved through detailed design, relocation of the pole and/or construction of an island; shall be lodged for approval by the local government prior to the commencement of construction. Construction works are to be undertaken in accordance with the approved engineering drawings and specifications to the satisfaction of the local government prior to the development first being occupied.	 The proposed development does not necessitate the need for up upgrade of Forrest Street. The Shire's officers have previously advised that no footpath is required along the portion of Forrest Street abutting the subject site. The relocation of the telephone pole to the west of the proposed crossover is not required and would result in an unreasonable cost to the proponent. As part of the Transport Impact Statement, no safety issues were identified with the location of the power pole. The setback from the straight part of the crossover to the pole is approximately 0.6m which provides sufficient clearance for vehicles to avoid the pole. We consider a satisfactory separation distance to the existing power pole can be provided and worked through at detailed design without the explicit need to relocate the power pole.
7.	Prior to the submission of an application for a building permit an Environmentally Sustainable Design report to the satisfaction of the local government shall be submitted for approval which identifies measures to be	 Request removal. The Shire's planning framework does not require an Environmentally Sustainable Design report to be provided. The proponent has already made commitments to sustainable design measures, including:

Condition	Proposed modification to condition	Justification
	undertaken that maximises environmental, social and economic sustainable outcomes for the development. The recommendations from the approved Environmentally Sustainable Design report are to be implemented to the satisfaction of the local government.	 Openable windows for natural ventilation and to reduce the reliance on mechanical heating / cooling. Native, waterwise landscaping species. Solar panels on the roof. Water efficient taps and energy efficient lights.
10.	Prior to the submission of an application for a building permit application the bushfire management plan shall be updated in accordance with the advice and recommendations of the Department Fire and Emergency Services (dated 9 December 2022) to the satisfaction of the local government.	 Request modification. Minor wording changes to specify that updates to the approved bushfire management plan should be in accordance with the most recent DFES advice dated 9 December 2022.
13.	Prior to the development first being occupied the Bushfire Emergency Evacuation Plan – Operational Document V3 V4 dated 24 October 16 November 2022 shall be updated in accordance Guidelines Section 5.5.4 'Developing a Bushfire Emergency Evacuation Plan' and implemented to the satisfaction of the local government.	 Request modification. Minor wording changes to ensure the most current version of the bushfire management plan (V4, dated 16 November 2022) is updated.
15.	Prior to the development first being occupied the fencing plan as shown on the approved plans, shall be implement to the satisfaction of the local government and shall include: (i) visually permeable fencing where fencing is identified in street front locations; and (ii) noise attenuation properties where identified in the acoustic assessment. Fencing is to be constructed and maintained in accordance with the approved plan for the duration of the development.	 Request removal. This condition is not required. Any proposed fencing should be constructed in accordance with the fencing shown on the approved development plans.
16.	Prior to the installation of any signage, a signage strategy shall be submitted and approved by the Local Government for the overall development site in accordance with the Shire of Murray Signs Local Planning	 Request removal. Any signage should be implemented in accordance with the signage shown on the development plans, should they be approved.

Condition	Proposed modification to condition	Justification
	Policy. Only signage consistent with the approved signage strategy is to be installed.	
17.	The building shall have a finished floor level of not less than 8.25mAHD.	 Request removal. A finished floor level (FFL) of 8.10m AHD is proposed, in consideration of the existing street level. We understand raising the FFL to 8.25m AHD will create problems for DDA compliance and access. The subject site is not within a flood prone area, which may warrant an increased FFL.
22.	The proposed bin store is to be designed and constructed in accordance with the Shire of Murray Health Local laws, and be roofed and screened to a height of at least 1.8m by a masonry, brick or other durable material which is visually compatible with the proposed buildings as approved by the Local Government.	 Request modification. The reference to providing a roofed bin store should be removed. An uncovered bin store with no roof allows for the appropriate levels of ventilation. A roof does not serve as additional screening of the bin store to the street or adjoining properties, as the bin store is set back from the lot boundaries.
23.	A context and character assessment and suitable design response for the elevation plans consistent with the plans outlined in Attachment 7 or suitable alternative is to be submitted for approval prior to an application for a building permit. The approved revised plans are to be implemented.	 Request removal. Please refer to previous justification.
24.	The land shown on the approved plan as required for a truncation at the corner of Forrest Street and James Street is to be ceded free of cost to the Crown and without payment of compensation prior to the development first being occupied.	 Request removal. Please refer to previous justification.

Presentation Request Form

Regulation 40(3) and DAP Standing Orders 2020 cl. 3.5

Must be submitted at least 72 hours (3 ordinary days) before the meeting

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Please complete a separate form for each presenter and submit to daps@dplh.wa.gov.au

Presenter Details

Name	Nathan Maas		
Company (if applicable)	Planning Solutions		
Please identify if you have	YES □ NO ⊠		
any special requirements:	If yes, please state any accessibility or special requirements		

Meeting Details

DAP Name	Metro Outer
Meeting Date	20 December 2022
DAP Application Number	DAP/22/2320
Property Location	Lot 2495 (7) Cheriton Drive, Carramar
Agenda Item Number	8.3

Presentation Details

I have read the contents of the report contained in the Agenda and note that my presentation content will be published as part of the Agenda:	YES ⊠
Is the presentation in support of or against the report recommendation)? (contained within the Agenda)	SUPPORT ⊠ AGAINST □
Is the presentation in support of or against the <u>proposed</u> <u>development</u> ?	SUPPORT ⊠ AGAINST □
Will the presentation require power-point facilities?	YES □ NO ⊠ If yes, please attach

Presentation Content*



These details may be circulated to the local government and applicant if deemed necessary by the Presiding Member. Handouts or power points will not be accepted on the day.

Brief sentence summary for inclusion on the Agenda	The presentation will address: In support of the officers recommendation, and request the amending of Condition 4 and Advice Note 1.
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In accordance with Clause 3.5.2 of the <u>DAP Standing Orders</u>, your presentation request <u>must</u> also be accompanied with a written document detailing the content of your presentation.

Please attach detailed content of presentation or provide below:

Refer attached presentation summary.

Planning Solutions (Aust) Pty Ltd

Presentation Summary

To: Metro Outer Joint Development Assessment Panel		From:	Planning Solutions		
Meeting number: MOJDAP/220				Job No	: 7949
Application number: DAP/22/2320		Item number:	8.3	Date:	20December 2022
Subject: Lot 2495 (7) Cheriton Drive, Carramar DAP Form 1 - Proposed mixed commercial development					

1. INTRODUCTION AND SCOPE OF PROPOSAL

Planning Solutions acts on behalf of FRP Capital, the proponent of the proposed redevelopment of the Carramar Village Shopping Centre at Lot 2495 (7) Cheriton Drive, Carramar (subject site). An Application for Development Approval for the aforementioned development was lodged with the City of Wanneroo (**City**) on 12 September 2022.

The application seeks approval for the removal of a portion of the existing parking area and the development of a two storey mixed-commercial development and associated signage, parking, and landscaping. The development will comprise a child care centre on the lower floor and a private-recreation on the upper floor.

We are pleased to receive the City's recommendation for **approval**, subject to conditions. We have worked collaboratively with the City during its assessment to resolve identified issues. This includes amending the plans in accordance with DRP feedback and undertaking additional parking studies.

The recommended conditions contained within the City's Responsible Authority Report (**RAR**), are reasonable and acceptable. However, for the reasons as outlined below, we respectfully request the **minor amendment** to **Condition 4** and **Advice Note 1**.

2. LANDSCAPING

The subject site currently comprises the Carramar Village Shopping Centre, with a total landscape area of 1,747m² (8.4%). This includes verge plantings, landscaped beds, and tree wells within the car park area. The proposed development is situated on the south western portion of the site, over a portion of the existing parking area. A limited number of tree wells are proposed to be impacted.

The development proposes additional landscaping, comprising the new outdoor play area, vegetation beds, and new car park tree wells, resulting in a new total landscaping area over the subject site of 1,820m² (8.75%). This is an increase on the existing landscaping on site.

The proposed development has no opportunity for additional landscaped areas.

Whilst we support the intent of Condition 4 and accompanying advice note, noting that it will be necessary to prepare a new landscaping plan following confirmation of a child care centre operator, we do not support the condition as currently worded.

The City has recommended the condition require the new plan achieve 8% soft landscaping and include additional shade trees within the parking area. In our view, the site will achieve more than 8% landscaping when considering the outdoor play space and verge areas. The inclusion of the 8% requirement does present some ambiguity and may require the overall development to change in order to achieve the condition, if more landscaping area is required if the City were to exclude the play space and verge areas. To ensure the condition is clear and certain, the condition needs to be amended to simply provide the specific landscaping detail for the areas designated for landscaping.

In the RAR, the City has identified a shortfall in the number of shade trees on site. The shortfall is existing, noting that the reconfigured car parking area offers a like for like replacement of trees. Notwithstanding, during the assessment process, the proponent agreed to additional shade trees within the Joondalup Drive verge to accommodate a portion of the shortfall. This is considered acceptable, as it would provide the most optimal impact and further improve the streetscape response.

As such, it is respectfully requested that the requirement for shade trees within parking area be removed from the condition, with the advice note being subsequently amended to provide guidance for the provision of additional trees.

In respect to the above, it is respectfully requested that the JDAP modify Condition 4 as follows:

A revised detailed landscaping plan is to be provided for the subject site. which must include a minimum of 8% soft landscaping and additional shade trees within the reconfigured parking areas. The landscaping plan must detail the plant species, densities, confirmation on mulch details, planting locations, and shade trees. The landscaping plan must be lodged for approval by the City prior to lodging a building permit. Planting and installation must be in accordance with the approved landscaping and reticulation plans and completed prior to occupation of the development and maintained thereafter, to the satisfaction of the City.

And modify Advice Note 1 as follows:

In relation to the requirement for a revised detailed landscaping plan, the revised landscape plan needs to detail the extent of soft landscaping in the Child Care Centre's outdoor play area, as well as additional verge trees within the Joondalup Drive frontage, to the satisfaction of the City.

3. CONCLUSION

Overall, we welcome and support the City's recommendation for approval. We respectfully request the JDAP consider our request, and approve the development with the minor modification of Condition 4 and Advice Note 1.

Thank you for your time and consideration. I would be pleased to answer any questions of the Panel at the meeting on 20 December 2022.

Should you have any queries or wish to discuss the matter, please do not hesitate to contact the writer.

PLANNING CONSULTANT

221215 7949 JDAP Presentation Summary.docx

COURTNEY PLACE 4, 12 & 16 (LOTS 15, 14 & 18) AND COLDWELL ROAD 12 (LOT 16) WATTLE GROVE -PROPOSED WAREHOÙSE/STORAGE & INCIDENTAL **OFFICES**

Form 1 – Responsible Authority Report (Regulation 12)

DAP Name:	Metro Outer Joint Development Assessment		
	Panel		
Local Government Area:	City of Kalamunda		
Applicant:	Taylor Burrell Barnett		
Owner:	The Trust Company (Au	stralia) Limited	
Value of Development:	\$20 million		
	☐ Mandatory (Regulation 5)		
		•	
Responsible Authority:	City of Kalamunda	,	
Authorising Officer:	Andrew Fowler-Tutt, Ma	nager Approval	
	Services	5 11	
	Alisha Kozma, Statutory	Planner	
LG Reference:	DA22/0329		
DAP File No:			
Application Received Date:	3 October 2022		
Report Due Date:	December 2022		
Application Statutory Process	s 90 Days		
Timeframe:	·		
Attachment(s):	 Development Plans 		
	2. Planning Report		
	Transport Impact Assessment		
	Bushfire Management Plan		
	5. Landscape Concept Plan		
	6. Stormwater Management Plan		
	7. Site and Soil Evaluation		
	Plan of Subdivision		
	9. Neighbours Letters of Support		
	10. Design Review Panel September		
	Minutes		
	11. Applicant Response to DRP Comments		
	12. DRP Member Response to Revised		
	Plans		
	13. Main Roads Comments		
	14. Applicant Response to Main Roads		
Is the Responsible Authority	☐ Yes Complete Res	ponsible Authority	
Recommendation the same as the	⊠ N/A Recommenda		
Officer Recommendation?			
	☐ No Complete Responsible Authority		
		commendation	
	sections		

Responsible Authority Recommendation

That the Metro Outer Joint Development Assessment Panel resolves to:

- Accept that the DAP Application reference DAP/22/02331 is appropriate for consideration as a "Warehouse/Storage" land use and compatible with the objectives of the zoning table in accordance with Clause 4.2.4 of the City of Kalamunda Local Planning Scheme No. 3;
- 2. **Approve** DAP Application reference DAP/22/02331 and accompanying plans in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of Clause 10.4 of the City of Kalamunda Local Planning Scheme No. 3, subject to the following conditions:

Conditions

- 1. Pursuant to clause 26 of the Metropolitan Region Scheme, this approval is deemed to be an approval under clause 24(1) of the Metropolitan Region Scheme.
- 2. This decision constitutes planning approval only and is valid for a period of 4 years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval shall lapse and be of no further effect.
- 3. The development being carried out in accordance with the plan(s)/drawing(s) and document(s) (including any recommendations made) listed below, including any amendments to those plans as shown in red.

Plan No.	Rev.	Title	Date	Prepared by
DA-00	В	Locality Plan	09.08.2022	Gibb Group
DA-002	F	Site Plan	26.10.2022	Gibb Group
DA-100	В	Office Plan	27.07.2022	Gibb Group
DA-200	D	Warehouse Elevations	25.11.2022	Gibb Group
DA-202	D	Office 1 Elevations	25.11.2022	Gibb Group
DA-201	D	Office 2 & Dock Office Elevations	25.11.2022	Gibb Group
2211001	E	Landscape Concept Plan & Planting Palette	October 2022	Plan/E Landscape Architetcs
CW1200369 / 304900766	Е	Transport Impact Assessment	31 October 2022	Cardno – Stantec
PT182-CI- CONCEPT- 01	В	Civil Stormwater Concept Plan	20.10.22	TE – tadros engineering
EP17- 023(18)	Α	Site and Soil Evaluation	February 2021	Emerge Associates
EP20- 157(04)	А	Bushfire Management Plan	July 2022	Emerge Associates

4. Prior to an occupation permit being granted for the development, an Interim Development Contribution Arrangement (IDCA) being prepared by the landowner in accordance with City of Kalamunda' Local Planning Policy 25 (Interim Development Contribution Arrangements) and executed by all parties, for the applicant to contribute towards the cost of providing common infrastructure as established through Local Planning Scheme Amendment No. 101, to the City of Kalamunda Local Planning Scheme No.3 when gazetted. Such arrangements are to be at the cost of the applicant and to the satisfaction of the City of Kalamunda.

5. Either

- i. Prior to occupation of the development, the lots must be legally amalgamated into one certificate of title, with the new title issued and a copy of the new title provided to the satisfaction of the City of Kalamunda; or
- ii. Prior to occupation of the development, implement a Right of Carriageway easement to benefit Lot 11 (28), Lot 12 (24), Lot 13 (20) and Lot 18 (16) Courtney Place and burden Lot 14 (12) Courtney Place and Lot 15 (4) Coldwell Road.
- 6. Prior to an occupation permit being granted of the development, the landowner/applicant contributing towards public art, pursuant to City of Kalamunda Local Planning Policy 26.
- 7. Prior to applying for a building permit, the landowner is to submit, and have approved by the City of Kalamunda, revised plans regarding the following:
 - i. The warehouse building façade design to Coldwell Road to include vertical and horizontal articulation using alternative colours, materials, columns, blades, or other architectural features.
 - ii. The office design to include vertical and horizontal articulation using architectural features to create distinctive entry doors and canopies and to complement the warehouse design through use of columns, blades, or other architectural features.
 - iii. The outdoor staff amenity areas adjacent to proposed "Main Office 1" to better integrate with the proposed landscaping.
 - iv. External finishes and colour scheme including consideration of the local development context and the incorporation of two different colours and two different materials.

Prior to occupation of the development, the approved warehouse and office design, and the external finishes and colour schemes are to be implemented to the satisfaction of the City of Kalamunda and maintained for the duration of the development.

- 8. Prior to applying for a building permit, a Construction Management Plan must be prepared by the landowner/applicant and approved by the City of Kalamunda. The Construction Management Plan must detail how the construction of the development will be maintained including the following:
 - i. Public safety and security;
 - ii. Hours of construction;
 - iii. Traffic management plans during construction, including any proposed road closures;

- iv. Toilet facilities for construction workers:
- v. Protection of public infrastructure including any verge trees;
- vi. How materials and equipment will be delivered, stored and removed from the site;
- vii. Parking arrangements for staff, contractors and visitors;
- viii. Construction Waste disposal strategy and location of waste disposal bins:
- ix. Details of cranes, large trucks or similar equipment which may block public thoroughfares during construction, and how they are to be managed;
- x. How dust, noise, erosion, lighting and environmental hazards and will be managed during the stages of construction;
- xi. Complaint management procedure; and
- xii. Other matters likely to impact on surrounding property owners.

The approved Construction Management Plan must be implemented prior to the commencement of works and thereafter maintained for the duration of works to the satisfaction of the City of Kalamunda.

- 9. Prior to occupation of the development, a Waste Management Plan must be prepared by the landowner and approved by the City of Kalamunda. The Waste Management Plan must include the following detail to the satisfaction of the City of Kalamunda:
 - i. The location of the bin storage areas and bin collection areas (all storage and loading areas must be screened from Courtney Place and Welshpool Road East).
 - ii. The number, volume and types of bins, and the type of waste to be placed in the bins.
 - iii. Management of the bins and the bin storage areas, including cleaning rotation and moving bins to and from the bin collection areas.
 - iv. Frequency of bin collections.
- 10. Prior to occupation of the development, all boundary fencing must be visually permeable and no greater than 2.1 metres in height to demonstrate compliance with the City of Kalamunda's Local Planning Policy 19 (Kalamunda Wedge Industrial Area Precinct 3A Design Guidelines) to the satisfaction of the City of Kalamunda.
- 11. For the duration of development, all car parking and landscaping areas located in the front setback area are not to be used for the storage of motor vehicles, machinery, equipment, or materials which are being wrecked or repaired, or for the stacking or storing of fuel, raw materials, products or by-products or wastes of manufacture, in accordance with the City of Kalamunda Local Planning Scheme No. 3.
- 12. Prior to an occupation permit being granted of the development, the landowner must locate and screen the following components of the development so that they are not visible from any road to which the site has frontage, adjoining properties or otherwise on display from any public vantage point:
 - i. Refuse storage areas.
 - ii. Service equipment.
 - iii. Mechanical ventilation.
 - iv. Refrigeration units.

- v. Storage areas for machinery, materials or the like.
- 13. Prior to occupation of the development, a notification is to be placed on the certificate(s) of title of the proposed lot(s) with a Bushfire Attack Level (BAL) rating of 12.5 or above, advising of the existence of a hazard or other factor. Notice of this notification is to be included on the diagram or plan of survey (deposited plan).

The notification is to state as follows:

"This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and is subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land"

14. All landscaping noted in the approved Landscape Plan must be planted in the first available planting season after the initial occupation of the development and maintained thereafter, to the satisfaction of the City of Kalamunda.

Any species which fail to establish within the first two planting seasons following implementation must be replaced at the landowners cost to the satisfaction of the City of Kalamunda.

- 15. Parking of passenger/commuter vehicles is only permitted within the designated bays and is not to occur elsewhere onsite or within the adjacent road verge.
- 16. Prior to the occupation of the development, bicycle facilities must be provided in accordance with the Australian Standard AS 2890.3 to the satisfaction of the City of Kalamunda. The facilities must be maintained thereafter and be retained for the duration of the development.
- 17. Prior to an occupation permit being granted for the development, all car parking areas must meet the following requirements:
 - i. The provision and maintenance of a minimum of 96 car parking spaces, which are designed, constructed, sealed, kerbed, drained and marked in accordance with Australian/New Zealand Standard AS/NZS 2890.1:2004, Parking facilities, Part 1: Off street car parking;
 - ii. The provision and maintenance car parking space(s) dedicated to people with disabilities, which are designed, constructed, sealed, kerbed, drained and marked in accordance with Australian/New Zealand Standard AS/NZS 2890.6:2009, Parking facilities, Part 6: Off street parking for people with disabilities and which are linked to the main entrance of the development by a continuous accessible path of travel designed and constructed in accordance with Australian Standard AS 1428.1 2009, Design for access and mobility, Part 1: General Requirements for access New building work;
 - iii. Vehicle parking, manoeuvring and circulation areas are to be suitably constructed, sealed, kerbed, line marked and drained to the specification and satisfaction of the City of Kalamunda and Australian Standard AS2890; and
 - iv. Comply with the above requirements and be maintained to the satisfaction of the City of Kalamunda for the duration of the development.

- 18. Prior to the occupation of the development, the recommendations of the Transport Impact Assessment are to be implemented to the satisfaction of the City of Kalamunda.
- 19. Prior to an occupation permit being granted for the development, all crossovers must be designed and constructed to the specifications and satisfaction of the City of Kalamunda.
- 20. Redundant vehicle crossover(s) to be removed and the kerbing, verge, and footpath (where relevant) reinstated with grass or landscaping to the satisfaction of the City of Kalamunda.
- 21. Prior to the occupation of the development, stormwater drainage is to be designed and constructed in accordance with the Urban Water Management Plan submitted for the development area Urban Water Management Plan for MKSEA Precinct 3C Stage 4, September 2021, to the satisfaction of the City of Kalamunda.
- 22. A geotechnical report in accordance with AS1726 Geotechnical Site Investigations is to be submitted to the satisfaction of the City, to inform designs such as earthworks, subsoil drainage, groundwater management, stormwater drainage, erosion control, slope stability, retaining walls, small structure footings, and road pavements.
- 23. Prior to the occupation of the development the proponent is to demonstrate that suitable screening devices have been erected, or other management measures put in place, to ensure that headlight glare from heavy vehicles on site does not detrimentally impact the safety of vehicle movements on the adjacent Welshpool Road East, to the satisfaction of the City of Kalamunda.
- 24. Prior to applying for a Building Permit, the applicant is to submit, and have approved by the City of Kalamunda, a Noise Management Plan demonstrating compliance with the Environmental (Noise) Regulations 1997. The Noise Management Plan is to be prepared by an appropriately qualified acoustic consultant (such as a member of the Australian Acoustical Society or the Association of Australian Acoustical Consultants). The approved Noise Management Plan is to be implemented to the satisfaction of the City of Kalamunda for the duration of the development.
- 25. Prior to occupation of the development, a new effluent disposal system that complies with the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulation 1974 must be installed.

Advice Notes

- Condition 4 is in acknowledgement of Amendment No. 101 to City of Kalamunda Local Planning Scheme No.3 which is viewed by the City to be a seriously entertained planning proposal, which will provide for developer contributions for community infrastructure.
- 2. In regard to condition 4, the City of Kalamunda's Local Planning Policy 25 provides a concise and documented procedure for the establishment of Interim Development Contribution Arrangements to provide for consistent management

- by the City, and a transparent process to manage interim arrangements for the community.
- 3. In regard to condition 6, the City of Kalamunda's Local Planning Policy 26 (Public Art Contributions) provides a concise and documented procedure for public art contributions to provide for consistent management and transparent process by the City.
- 4. In regards to condition 6, the landowners advised that a public art contribution of \$200,000 applies to this approval, which can be provided through either a public art contribution within the subject site or within a public area within the vicinity of the subject site equal to \$200,000, or alternatively the provision of a \$200,000 as in lieu payment to the City of Kalamunda's Public Art Fund.
- 5. In regards to condition 23, the boundary fence condition has been imposed to address safety issues in regards to heavy vehicle movements from the adjoining development site (subject to DA22/0309 and DAP/22/2312).
- 6. Any damages to public assets arising during the course of the development activity are to be repaired and restored in accordance with the "Local Government Guidelines for Restoration and Reinstatement in WA" and to the satisfaction of the City of Kalamunda.
- 7. The applicant is advised to manage and minimise dust during the works and after completion in accordance with the Department of Environment and Conservation's "Guideline for Managing the Impacts of Dust and Associated Contaminants from Land Development Sites, Contaminated Sites Remediation and Other Related Activities".
- 8. The applicant is advised to manage and minimise erosion and sediment loss during the works and after completion in accordance with the Eastern Metropolitan Regional Council's policy 5.1.2 "Erosion and Sediment Control".
- 9. The applicant is required to manage noise and vibration during the works in accordance with Australian Standard AS 2436 "Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites".
- 10. A Traffic Management Plan (TMP) is required for any works in the road reserve or impacting the road reserve. Submit a TMP in accordance with Main Roads WA's Traffic Management for Works on Roads Code of Practice, to the City. For non-complex TMPs submit the TMP at least 14 calendar days before commencing work, and for complex TMPs a minimum of 21 days before commencing work. The Traffic Management Plan must be approved before work impacting the road reserve can commence.
- 11. The applicant is reminded of their obligations to comply with the "Land development sites and impacts on air quality: a guideline for the prevention of dust and smoke pollution from land development sites in Western Australia", prepared by the Department of Water and Environment Regulation.
- 12. It is prohibited to clear endemic (native) vegetation unless the clearing is authorised by a clearing permit obtained from the Department of Water and Environmental Regulation (DWER) under the Clearing Regulations of Part V of the Environmental Protection Act (WA) 1986 or is of a kind exempt in accordance

- with Schedule 6 of the Environmental Protection Act 1986 or Regulation 5 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.
- 13. This development approval does not authorise the erection of any signage not exempted by Schedule 5 (Exempted advertisements) of the City of Kalamunda Local Planning Scheme No. 3.

Details: outline of development application

Region Scheme	Metropolitan Region Scheme		
Region Scheme -	Industrial		
Zone/Reserve			
Local Planning Scheme	Local Planning Scheme No. 3		
Local Planning Scheme -	Light Industry		
Zone/Reserve	N//A		
Structure Plan/Precinct Plan	N/A		
Structure Plan/Precinct Plan	N/A		
- Land Use Designation	(D)		
Use Class and	Warehouse/Storage – "P"		
permissibility:	Office (Incidental) – "D"		
Lot Size:	Lot 14 (12) Courtney Place – 10,063sqm		
	Lot 15 (4) Courtney Place – 10,005sqm		
	Lot 16 (12) Coldwell Road – 10,061sqm		
Existing Land Han	Lot 18 (16) Courtney Place – 10,645sqm		
Existing Land Use:	Vacant		
State Heritage Register	No No		
Local Heritage	⊠ N/A		
	□ Heritage List		
	□ Heritage Area		
Design Review	□ N/A		
	□ State Design Review Panel		
	□ Other		
Bushfire Prone Area	Yes		
Swan River Trust Area	No		

Proposal:

The development application seeks approval for a Warehouse/Storage development and incidental Office land use across Lot 15 (4), Lot 14 (12) and Lot 18 (16) Courtney Place and Lot 16 (12) Coldwell Road, Wattle Grove. The key components of the development are summarised below:

Proposed Land Use	Warehouse/Storage
Proposed Net Lettable Area	21,900sqm
Proposed No. Storeys	1 + Mezzanine Office
Proposed No. Dwellings	n/a

- 2 Warehouses with a flexible internal wall totalling 21,330sqm.
- 3 Incidental Offices totalling 570sqm.

- 11,060sqm of hardstand area to accommodate vehicle movements.
- 1,620sqm of landscaping area for drainage purposes.
- A total of 98 car parking bays.
- 10 bicycle racks.
- Two (2) crossovers for heavy vehicles with one (1) entrance off Courtney Place and one (1) exit onto Coldwell Road.
- Three (3) light vehicle crossovers each entry/exit onto Coldwell Road.
- A maximum of 48 employees on site at any one time is anticipated.

Background:

Site Description

The subject site is located within the Maddington Kenwick Strategic Employment Area (MKSEA) and is located on the corner of Coldwell Road and Courtney Place with Lot 18 (16) Courtney Place also abutting Welshpool Road East. The subject site compromises a total area of 40,774sqm, refer to the below table for the Lot details subject to this development application:

Table 1 - Lot Details

Tubic : Lot Detaile				
ADDRESS	LANDOWNER	VOL.	FOLIO	AREA
Lot 14 (12) Courtney	ROE 71 PTY LTD	1657	611	10,063sqm
Place, Wattle Grove				
Lot 15 (4) Courtney	ROE 71 PTY LTD	1656	697	10,005sqm
Place, Wattle Grove				
Lot 16 (12) Coldwell	PLANET BUILDING	1657	612	10,061sqm
Road, Wattle Grove	PRODUCTS PTY LTD			
Lot 18 (16) Courtney	PLANTE BUILDING	1657	614	10,645sqm
Place, Wattle Grove	PRODUCTS PTY LTD			

In summary, the subject site is described as follows:

- 1. Zoned 'Industrial' under the Metropolitan Region Scheme (MRS) and 'Light Industry' under the City of Kalamunda Local Planning Scheme No.3 (LPS3).
- 2. Bounded by Welshpool Road East, Courtney Place and Coldwell Road. The land uses to the south of the site are General Industry, to the west are Light Industry, to the east Special Rural and, across Welshpool Road East to the north, Residential.
- 3. Identified on the Department of Fire and Emergency Services (DFES) OBRM mapping as being located within a Bushfire Prone Area (BPA) under the Fire and Emergency Services Act 1998 (as amended).
- 4. Located within Special Control Area (SCA) No. 6 to LPS3 which imposes specific development conditions over future developments (refer to Planning Framework section of this report for further information in this regard).
- 5. Located within a Draft Development Contribution Area (DCA)/ Development Contribution Plan (DCP) which imposes Developer Contributions over the subject site and recommended condition 4.

- 6. The immediate locality surrounding the subject site forms part of the Maddington Kenwick Strategic Employment Area (MKSEA).
- 7. A subdivision application to amalgamate and realign 9 lots to create one 'super lot' (Lot 101) has been approved by the Department of Planning Lands and Heritage (refer attachment 8).



Figure 1 Scheme Map

The Maddington Kenwick Strategic Employment Area

The subject site is located within the Maddington Kenwick Strategic Employment Area (MKSEA). The MKSEA precinct is located predominately within the City of Gosnells (CoG) with only 13% of the land within the City of Kalamunda (the City). The MKSEA is bounded by Bickley Road, Tonkin Highway, Welshpool Road East, and Roe Highway.

The MKSEA was rezoned from 'Rural' to 'Industry' under the Metropolitan Region Scheme (MRS) in accordance with MRS Amendments 1300/57 (the City) and 1301/57 (CoG) which were approved and published in the Government Gazette in October 2016. The portion of MKSEA to which the subject site forms part known as precinct 3A, was subsequently rezoned from 'Special Rural' to 'General Industry' and 'Light Industry' through Amendment 89 to Local Planning Scheme No. 3 which was approved by the Minister and published in the Government Gazette in June 2017.

Site History

The below table provides a summary of the planning history over the subject site.

Table 2 – Site History

October 2016	MRS Rezoning
	MKSEA area rezoned from 'Rural' to 'Industry' under the
	Metropolitan Region Scheme (MRS) in accordance with MRS
	Amendments 1300/57 (the City) and 1301/57 (CoG).

June 2017	LPS3 Rezoning Council resolved to adopt Scheme Amendment 89 to rezone land from "Special Rural" to "General Industry" and "Light Industry" and introduce a Special Control Area. The subject site was rezoned to "General Industry"
February 2017	Local Water Management Strategy (LWMS) Approved by Department of Water (now Department of Water and Environmental Regulation)
August 2017	Subdivision Approval – WAPC 154761 Created 17 lots and punctured Courtney Place through to Logistics Boulevard. Valid until 25 August 2023.
December 2018	Initiation of Amendment No. 101 to LPS (MKSEA DCP) Council initiated Amendment No. 101 to LSP3 for public advertising. The Amendment was required to introduce a Development Contribution Area (DCA) and Development Contribution Plan (DCP) for the MKSEA industrial area which this site forms part.
March 2019 to May 2019	Public Notification of Amendment No. 101 to LPS (MKSEA DCP) Amendment No. 101 was advertised which enabled the City of Kalamunda to commence imposing conditions pertaining to development contributions on subdivision and development approvals.
29 April 2019	Clearing of Vegetation Approval – DA19/0046 Removal of trees along the boundary with Courtney Place and Coldwell Road to support future development.
18 May 2021	Bulk Earthworks Approval – DA21/0096 Earthworks within Lots 14 & 15.
2 November 2022	Subdivision Approval – WAPC 162674 Subdivision & Road Realignment Amalgamation of 9 Lots to create Lot 101 inclusive of Lots 14, 15, 16 & 18.

Legislation and Policy:

Legislation

Planning and Development Act 2005
Planning and Development (Local Planning Schemes) Regulations 2015
Planning and Development (Development Assessment Panel) Regulations 2011
Metropolitan Region Scheme (MRS)
City of Kalamunda Local Planning Scheme No. 3 (LPS3)
Environmental Protection (Noise) Regulations 1997

State Government Policies

State Planning Policy 3.6 – Development Contributions for Infrastructure

State Planning Policy 3.7 – Planning in Bushfire Prone Areas

State Planning Policy 4.1 – State Industrial Interface

State Planning Policy 7.0 – Design of the Built Environment

Government Sewerage Policy 2019

Structure Plans/Activity Centre Plans

n/a

Local Policies

Local Planning Policy 2 – Advertising Signage (LPP2)

Local Planning Policy 14 – Car Parking (LPP14)

Local Planning Policy 19 – MKSEA Design Guidelines (LPP19)

Local Planning Policy 25 – Interim Development Contribution Arrangements (LPP25)

Local Planning Policy 26 – Public Art Contributions (LPP26)

Draft Local Planning Policy 33 – Tree Retention (draft LPP33)

Consultation:

Public Consultation

The application did not require public consultation

Referrals/consultation with Government/Service Agencies

1. Main Road Western Australia (MRWA)

As the proposed development site abuts Welshpool Road East, the application was referred to Main Roads Western Australia (MRWA) for their comment in accordance with Clause 66 of the Regulations. MRWA advised they are unable to provide a recommendation and are not in a position to support the application until additional information is provided. The below table summaries the issues needing to be addressed and the further information requested (refer Table 3 below).

Table 3 – Main Roads Referral

MRWA Comments	City Response	
The number of light vehicle crossovers onto Coldwell Road seems excessive. Justification required.	Coldwell Road is under the City of Kalamunda's jurisdiction and the City has no objection to the number of crossovers proposed.	
over the neighbouring lot to accommodate the left turn exit	The City acknowledges the plans indicate a wide encroachment, a 1.5m truncation into the neighbouring lot is permitted by the City and will be addressed through Condition 19.	

Concern over service vehicles entering/exiting the development site and concern over where this access will be from (i.e. from heavy or light vehicles access). Swept paths need to be updated.

The ingress and egress to and from the site occurs onto roads under the care and control of the City. .

Notwithstanding the advice of MRWA, the City is confident service vehicles can enter and exit the subject site safely.

Request the timing of Coldwell Road widening and upgrade be provided, with concern over the impact of functionality of vehicle movements through the industrial precinct and congestion at Welshpool Road East.

The timing of the upgrade to Coldwell is unknown at present, however the City does not believe this should impact on the ability of the JDAP to determine the development application.

Request the timing of Welshpool Road East and Coldwell Road intersection upgrade be provided. Concern over the safety of heavy vehicle movements in and out of the industrial precinct.

The Coldwell Road widening will be completed in line with the subdivision approval(s) granted (162674,162653, and 161915).

The Welshpool Road East and Coldwell Road intersection upgrades will be completed as part of the DCP works, noting Condition 4 requires the applicant to contribute to these works. Further, the City has draft designs which are progressing through MRWA.

Further, the closest access location for the development is approximately 134m from the Welshpool Road East /Coldwell Road intersection and therefore will have no material impact on the functionality of the intersection for a 70Kph design speed is expected.

Main Roads has concerns with some of the key assumptions within the TIA. These include:

 The count survey used and indicated a 10% peak movement variation to data available on the Main Roads Traffic Map.

- The justification for volumes and growth rate.
- The assumed 2% pa growth should be instead replaced by the AIMSUN modelling.
- Heavy vehicle percentages will be markedly higher given the development which has occurred since December 2020. The Traffic Map May 2021 video

The City accepts the TIA as amended and as per Attachment 3. Whilst there may be more recent data available to Main Roads, the City is satisfied the safety of traffic movements has been adequately addressed.

Further, on advice from the applicant, the data used within the TIA was taken from December 2020 whilst MRWA suggested data was taken May 2021. The City agrees with the applicant the data used is still fit for purpose and notes the 10% variation in data is acceptable in justifying the fit for purpose comments.

The applicant has indicated the AIMSUN modelling would not be suitable given

survey data would be more appropriate.	the assumptions within this modelling have been revised in the design of Tonkin Hwy and Hale Rd which the City supports.
Main Roads has concerns with the development traffic distribution. These include:	The City accepts the TIA as amended and as per Attachment 3.
 Scenario 2 – premature to assume development's generated trips will be greater to/from the south instead of from the to/from the north. Scenario 3 – lack of clarity in how trips are distributed beyond the three access roads. 	The trip generation is considered to be safely addressed by the TIA. It should also be noted, the percentage of trip generation is understood by the City to be based on a percentage generated by the site in relation to the total movements associated with the MKSEA precinct and not the movement percentage generated from the site (i.e. of the 2 AM peak left turn movements onto Logistic Blvd from Courtney Place, 15% will be generated by the development site, resulting in between 1-2 trips per week).

Notwithstanding the above comments, the development does not propose any crossovers or direct access onto Welshpool Road East, and as such the City is satisfied the concerns raised by MRWA have been adequately addressed in the TIA and development plans.

Design Review Panel Advice

Pursuant to Clause 6.2 of LPP 16, the proposed development is considered to be a 'significant proposal' and therefore the advice of DRP was sought and considered during the assessment of this Development Application.

The City of Kalamunda's DRP, comprised of independent experts in the field of architecture, urban design and urban planning, provides formal technical and professional advice and recommendations to the City on significant planning proposals. A review of the proposal was considered by the DRP on 29 September 2022 (refer Attachment 10). Following a response from the applicant deemed not to be to the City's satisfaction, the City sought comments from a DRP member

Pursuant to Clause 10.3 of LPS3, the City is required to give due regard to any relevant recommendation of the DRP. The below table provides a summary of the proposals response to the recommendations made by the DRP.

Table 4 - Design Review Panel Advice

Table 4 - Design Neview I allel Advice		
DRP Comments	Response	
	The applicant has advised the offices will	
	be retained in their current location;	
scale from the street.	however, additional design considerations can be made to provide	
scale from the street.	better articulation to Coldwell Road. The	

applicant requested the City condition these changes.

The applicant has advised the architect will adjust the form of the roofs of the offices to ensure a greater level of articulation and visual presences is provided.

The City has conditioned (Condition 7) detailed designs be provided to reflect the design requirements of Local Planning Policy 19 – MKSEA Design Guidelines.

Integrate staff amenities and façade treatments with the landscape design.

The applicant has amended the landscape plan to increase the pot size of trees from 100L to 200L at the time of planting, but the location and integration of landscaping has not been addressed to date.

The applicant has advised the outdoor area for staff to office 1 will be adjusted to improve employee amenity.

The City has conditioned (Condition 7) details be provided to address the location of outdoor staff areas and provide improved landscaping outcomes.

The overall development aesthetic is not consistent with the significance of the site as an entry point to the estate. The applicant has amended the warehouse to include some additional colour panels. The applicant has also indicated they will be willing to further adjust the warehouse design in relation to colour design to improve the aesthetic appearance but have indicated the size and shape will not be amended.

The office colours have been moderately amended and the applicant has advised they are willing to amend the office roof form.

The City has added a condition (7) requiring detailed design in relation to the design of the warehouse and office inclusive of the outdoor staff area to address the applicants design comments.

Consider the locality of the foothills in materials and colour selection and overall aesthetic outcome.	Limited consideration have been given to the locality of the foothills through the materials and colour selection. Condition 7 will allow the City to address this comment to some degree.
Integrate public art into the design of the building/façade and address the blank walls of the warehouse.	The standard public art condition (Condition 6) has been added. This will allow the applicant to either provide onsite or cash-in-lieu contribution. Given the current design it is not expected public art will be provided through the building/façade design.
The development entry points require a more sophisticated approach and should consider increasing canopies to provide visibility.	The applicant has advised the roof form of offices will be adjusted post approval and subject to Condition 7. The City has also outlined the need for entry points to offices to be distinct.

Internal Departments

The application was referred to relevant internal departments for formal comment as part of the consideration process. All departments are satisfied with the proposal subject to the recommended conditions and advice notes.

Planning Assessment:

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

- 1. Built Form Design (LPP19 MKSE Design Guidelines)
- 2. Car Parking (Table 3 of LPS3)
- 3. Parking and Access (LPP19 MKSE Design Guidelines)
- 4. On-site Landscaping (LPP19 MKSE Design Guidelines)

Land Use Permissibility

The subject site is zoned "Light Industry" under LPS3 with the proposal seeking approval for "Warehouse/Storage" which is a (P) permitted land use in accordance with Clause 4.3 and Table 1 of LPS3.

The "Warehouse/Storage" use is defined in Schedule 1, Part 2 of LPS3 as:

- **"warehouse/storage"** means premises including indoor or outdoor facilities used for
 - (a) the storage of goods, equipment, plant, or materials; or
 - (b) the display or sale by wholesale of goods;

It should be noted that the proposed development also seeks approval for 'incidental uses' (Office) which is defined by Schedule 1, Part 1 of LPS3 as follows:

"incidental use" means a use of premises which is ancillary and subordinate to the predominant or primary use

The City is satisfied the "Office" use meets the definition of an incidental use.

Built Form

The City provides a framework to guide the assessment of the built form developments within the MKSEA industrial area through relevant LPS3 provisions which are further supplemented through the design parameters set by State Planning Policy 7.0 (SPP 7.0) and the MKSEA Design Guidelines (LPP19).

The below table outlines the proposals compliance with the built form requirements applicable to the subject site.

Table 5 – Built Form Assessment

PROVI	SION	REQUIREMENT	PROPOSAL	COMPLIANCE
3.3,	PRIMARY STREET		24.085m (Warehouses)	YES
CI 2.3.3, LPP19)	(Coldwell	15.0m	5.785m (Office 1)	NO
LPS3 &	Road)		6.297m (Office 2)	NO
ζ,	SECONDARY STREET		5.892m (Warehouse 2)	YES
(Courtney Place) SIDE (West)	3.0m	13.435m (Office 2)	YES	
SIDE (West)		Nil	46.00m (Warehouses)	YES
('	REAR (Welshpool Road East)	15.0m	48.80m (Warehouse 1)	YES
_	OVERAGE 2, LPS3)	60%	59.9%	YES
_	RATIO AREA 2, LPS3)	0.5	0.54	NO
END O FACILI	F TRIP	1 female & 1 male shower or 2 unisex showers	2 unisex showers & 10 bicycle bays/racks	YES

Building Design and Quality

The City provides a framework to guide the assessment of the overall built form throughout the MKSEA industrial area through the provisions of LPP19. With an emphasis on providing high quality industrial buildings that incorporate articulation, present to primary streets, and utilise a diversity of materials to break up facades.

The proposal has demonstrated some mixed outcomes in relation to the building design and quality, noting the following comments:

- The warehouses do not provide any architectural features to provide for horizontal and vertical articulation.
- The offices provide some architectural features including aluminium fins front Coldwell Road frontage, however, in the context of the development the scale of these features is insignificant in breaking up the mass of the overall development.
- Some colour variation has been proposed along the warehouse; however, the
 overall design does not achieve the development objective to achieve a high
 quality design outcome.
- Glazing from the offices has been provided towards both street frontages where applicable.
- The development and design have not used architectural features to visually establish the pedestrian access points.

Given the development design and quality has not achieved the development controls set out within Clause 2.3.1 of LPP19, the City has, supported by the comments received from the DRP, included condition 7 requiring the applicant to address specific design aspects as requested by the DRP and consistent with the provisions of LPP19. The condition along with the comments received from the applicant indicate the design can be amended to sufficiently achieve the design and quality outcomes envisioned by LPP19.

Building Orientation

The City provides a framework to guide the assessment of the overall precinct layout and building orientation throughout the MKSEA industrial area through the provisions of LPP19. With an emphasis on having the buildings orientated to the primary street.

The development is located on a corner lot with frontages to Coldwell Road, Courtney Place and Welshpool Road East. The proposal has not provided entrances oriented to face the primary street (Coldwell Road); however, access will be from the primary street. Additionally, whilst the offices are located along Coldwell Road, the scale and design of the offices limits the impact on Coldwell Road and leaves vast blank walls fronting the primary street. Noting this, major openings have been provided from the office towards the street to provide some articulation and positive design outcomes.

The City is satisfied that if the office entries are well identified through the design, and as per Condition 7, the development objectives will be adequately achieved.

Landscaping:

The proposed development includes a variety of landscaping treatments. The table below outlines the proposals compliance with the landscaping requirements applicable to the site under LPS 3 and LPP 19.

Table 6 – Landscaping Requirements

PROVISION	REQUIREMENT	PROPOSAL	COMPLIANCE
LANDSCAPING STRIP (Table 2, LPS3 & Cl. 2.4, LPP19)	3m to all road frontages & 4m to Welshpool Road East	Coldwell – 5.785m Courtney – 5.892m Welshpool Road East – Min. 2.0m Max. 30m	YES YES NO
AREA OF LANDSCAPING (CI 2.5.1, LPP19)	5% of the total lot area to be allocated for landscaping (equates to 2,004sqm required)	9.13% of total area allocated for landscaping (~3,660sqm)	YES
TREE REQUIREMENT (CI 2.5.1, LPP19)	1 tree per 4 car parking bays (25 trees required for 98 car parking bays) (minimum 50L)	25 car park trees proposed (50L)	YES
	1 tree per every 10 metres of site frontage (minimum 100L)	23 street trees 31 trees within the landscape strip (100L to 200L)	YES

As noted in the above table, the development seeks variation to the landscaping requirements of LPP 19 in respect to landscaping strips along the road frontage to Welshpool Road East. The variation is for a total of 15m long and equates to approximately 25sqm lost landscaping area. The variation is triggered by the heavy vehicles movements and swept path design requirements. Given the landscaping area then expands to approximately 30m wide, the variation is considered acceptable.

Signage:

The proposed development includes signage located on the warehouse visible from Courtney Place and Coldwell Road (facing Welshpool Road East). The location and size of these sizes are of an appropriate scale based on the overall size of the development and are consistent with the Design Guidelines.

Car Parking

The below table outlines the City's parking requirements in accordance with Table 3 of LPS3:

Land Use	LPS Standard	LPS Requirement	Provided
Warehouse/ Storage	3 bays for up to the first 200m ² of floor area and thereafter 1	21,690sqm NLA = 217.9 bays (218)	98 bays

bay for every 100m ² of NLA or	
part thereof.	

The car parking proposes a 120-bay shortfall over the development site with a total of 98 car parking bays (including 2 accessible bays) proposed in lieu of 218 bays required under LPS3. Given the development proposes a car parking variation, the City must refer to the Regulations for guidance, noting Clause 77D of the deemed provisions provides the City with the opportunity to vary the minimum on-site parking requirements provided the City is satisfied that reasonable efforts have been made to comply without adversely affecting the development. The City must consider whether provision of the additional bays would adversely affect the access arrangements, safety of pedestrians or persons in vehicles, open space, street trees or service infrastructure. The City must also consider the if the lower number is adequate for the development and will not create parking issues. Noting the proposed use (warehouse/storage) and the anticipated staff numbers (maximum of 48 employees on-site at any one time) and few visitors (8 at any one time), the City is confident the proposed parking shortfall is appropriate for the site and any increase in parking would detrimentally affect the access, open space and service infrastructure, whilst also likely having impacts on safety of pedestrians.

Discretion is also afford through the City's LPS3, Clause 5.7.2 with due regard to be given to the proposals parking demand, the scale and nature of the intended use. The City is satisfied the parking shortfall is sufficient to accommodate the needs of the tenants and an expansion of the staffing needs, without having detrimental impacts on the amenity of the area. It should also be noted, the applicant has advised amendments the staff amenities for Office 1 will likely result in a 2-bay shortfall. This minor additional variation will not change the comments above, therefore the City of Kalamunda is supportive of the proposed parking shortfall.

To ensure a minimum of 96 car parking bays are constructed, and in accordance with Australian Standards, condition 17 has been recommended.

Traffic and Access

The proponent has provided a Transport Impact Assessment (TIA) to support the application which has been assessed and is supported by the City. The TIA concludes the daily traffic volume being generated as part of this development is 322 movements. During the AM peak 25 vehicle movements are estimated while during the PM peak 24 vehicle movements are estimated. An additional 5 truck movements are anticipated to exit from the adjacent development on Lot 12 Courtney Place (through the internal driveway). Swept paths analysis included within the TIA indicate trucks and passenger vehicles can safely enter and exit the site via the proposed crossovers.

Access to the site is proposed via 5 crossovers and 1 internal access:

- 1. A 11.2m wide heavy vehicle entrance off Courtney Place (A);
- 2. 3x 6.0m wide light vehicle entry/exit off Coldwell Road (B, C & D);
- 3. A 15.4m wide heavy vehicle exit onto Coldwell Road (E); and

4. A 9.5m wide internal access way between the proposed development site and the adjoining development site (subject to DA22/0309 & DAP/22/02312).

Bushfire

The subject site is identified on the Department of Fire and Emergency Services (DFES) mapping as being located within a Bushfire Prone Area (BPA) under the Fire and Emergency Services Act 1998 (as amended). Designation of an area as being bushfire prone reflects the potential of bushfire to affect this site and acts as a mechanism for initiating further assessment in the planning and building processes.

The development is supported by a Bushfire Attack Level Contour Map which determines a BAL-12.5 for the site. In accordance with the requirements of SPP3.7, a Bushfire Management Plan (BMP) was prepared in support of the proposed development. The intent of the BMP is to identify the hazards within the vicinity of the subject site and to ensure any hazards are mitigated in accordance with the requirements of the Guidelines for Planning in Bushfire Prone Areas.

The table below outlines the developments response to the bushfire protection criteria outlined in Appendix 4 of SPP 3.7 which are applicable to the development application. Refer to Attachment 4.

Table 7 – Bushfire Requirements

	EMENT.	ASPECT	DEVELOPMENT RESPONSE	COMPLIANCE
1.	Location	Development Location	The site is located within an urban context and has been identified as an industrial area.	YES
2.	Siting and Design	Asset Protection Zone (APZ)	The development proposes a significant amount of hardstand surrounding the building which, along with public roads, enables separation to bushfire hazards to be achieved.	YES
3.	Vehicular Access	Two Access Routes	Courtney Place provides egress options to the west, whilst Coldwell Road provides egress to the north and south. Coldwell Road also connects to Welshpool Road to the immediate north of the site.	YES
		Public Road	Courtney Place is proposed to be realigned to facilitate heavy vehicular movement across the precinct. The realignment will ensure the Courtney Place will meet the minimum standards. Coldwell Road currently complies with the minimum	YES

		standards with a minimum 8-metre-wide road pavement.	
4. Water	Reticulated Areas	The site is connected to a reticulated water supply and an existing fire hydrant is located along Courtney Place and Coldwell Road to the east. The requirement for additional hydrants will be determined with detailed design.	YES

As noted in the above table and in the BMP (Attachment 4), the proposed development complies with all relevant acceptable solutions for the Bushfire Protection Criteria including location, siting and design of development, vehicular access way and water. In addition to the above, to ensure compliance with section 6.10 of SPP 3.7, condition 13 has been recommended to advise that the site is subject to the BMP.

Development Contributions

The subject site is located within the boundaries of a Draft Development Contribution Area (DCA) which was established to facilitate and coordinate the progressive upgrade of public roads and drainage infrastructure within the MKSEA industrial area.

In December 2018, the City of Kalamunda progressed the initiation of Amendments to their Local Planning Schemes which enables the introduction of a Special Control Area to establish a DCA over MKSEA. The City of Kalamunda Local Planning Scheme Amendment is referred to as Amendment 101 to LPS3.

Amendment 101 proposes to include Schedule 12 to LPS3, which establishes the DCP for the MKSEA area. Amendment 101 was adopted by Council for the purposes of public advertising in December 2018 and was subsequently advertised for a period of 75 days, concluding in May 2019.

Regulation 73(1) of the *Planning and Development (Local Planning Schemes)* Regulations 2015 (Regulations) states that a local government must not levy a contribution for the provision of infrastructure unless there is a DCP in place over the area. Conversely, the Regulations also state under Regulation 73(3) that a local government must not refuse to grant development approval on the grounds that a DCP is being prepared, unless the plan has already been advertised. The reasoning is that the City may not contemplate refusal of a proposal where an advertised DCP has not yet been finalised through a gazetted Scheme Amendment and in situations where the payment of contributions cannot be determined.

Deemed Provision 69(1) precludes a local government from refusing an application for development approval solely on the basis that a DCP in relation to the development has not been gazetted.

To progress development in the MKSEA industrial area, the City requires by way of condition, an Interim Development Contribution Agreement (IDCA) to be prepared between the landowner and the City securing a future development contribution with the gazettal of Amendment No. 101 to LPS3 (refer recommended condition 4).

The City of Kalamunda's Local Planning Policy 25 (LPP25) provides a concise and documented procedure for the establishment of IDCAs to provide for consistent management by the City, and a transparent process to manage interim arrangements for the community.

Special Control Area Provisions

The subject site is located within SCA6 of LPS3 which applies Design Guidelines to the area, modifies land use permissibility and applies additional provisions to development and subdivision applications within SCA6 (Clause 6.8 of LPS3). The development proposals compliance with the SCA requirements is outlined in the below table.

Table 8 – Special Control Area 6 Requirements

	able 8 – Special Control Area 6 Requirements LPS3 REQUIREMENT CITY COMMENT					
LI 00 I	EGOINEMENT	OTT COMMENT				
6.8.1	Subdivision and/or development proposals to shall be supported by:	within the Special Control Area				
	a) A BAL assessment or Contour Map, prepared in accordance with the Guidelines of Planning in Bushfire Prone Areas (as amended), demonstrating how any bushfire hazards identified can be appropriately managed within the context of the proposal to the satisfaction of the Shire of Kalamunda.	COMPLIES – Refer to Attachment 4 which nominates a BAL-12.5 or lower rating for the subject site(s).				
	b) A Local Water Management Strategy, prepared in accordance with Better Urban Water Management on the advice of the Shire of Kalamunda, to the satisfaction of the Department of Water.	COMPLIES with the adopted LWMS				
	c) Investigations to determine if any significant vegetation, flora or fauna habitat occurs within the proposal area. Where relevant to a subdivision area or development application, detailed management plans shall be prepared and implemented to the satisfaction of the Shire of Kalamunda.	NOT APPLICABLE – no vegetation remains on site with vegetation removal approved through application relating to vegetation removal and bulk earthworks.				
	d) Design Guidelines adopted by the local government under Part 2 of the deemed provisions for development of land on lots directly fronting Welshpool Road East.	ADDRESSED – refer to the planning assessment and officer comment section of this report.				

Public Art

The City has a Local Planning Policy 26 (LPP26) for Public Art that is applicable to all development where the estimated cost of development exceeds \$500,000 with the exception of some residential based proposals. Public art plays an important role

throughout the City of Kalamunda's built environment. The City encourages public art that contributes to creating a strong sense of place, promotes the local identity and responds to the culture and character of the community. Public art can attract people to work, live and recreate in a place and thereby encouraging associated cultural and economic activity.

The City has considered the individual merits of the proposed development and concluded that it generates a planning need for public art for the following reasons:

- The subject site is a prominent site in the context of the MKSEA precinct and will form the entrance site to the Roe Highway Industrial Park from the east. Given the sites significant public art will provide a benefit to the whole development area.
- 2. The site backs onto Welshpool Road East which forms part of the heavy vehicle freight network and is subject to high volumes of traffic. There would be a benefit to passing traffic along Welshpool Road East to incorporate some form of artwork that is visually pleasing.
- 3. The development encompasses a large warehouse with vast blank walls consisting of some but limited colour design variations, and whilst there will be trees and landscaping provided along the lot boundaries, the area will not be entirely screened and therefore not aesthetically pleasing.

Based on the above the City believes that there is sufficient need and nexus to warrant the application of LPP-26 should the proposal be supported.

Effluent Disposal

The proposed development is currently not connected to reticulated sewerage and is therefore required to be serviced by on-site effluent disposal in accordance with the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 and the Government Sewerage Policy 2019. Condition 25 has been imposed to ensure the development is provided with adequately sized effluent disposal.

Acoustic Requirements

Whilst Precinct 3A of the MKSEA is zoned Industrial under the MRS and General Industry and Light Industry under LPS3, the City acknowledges that there are lots within Precinct 3A which are yet to developed and currently form residential uses as well as residential uses across Welshpool Road East which could be impacted by noise. As the applicant has not nominated hours of operation, condition 23 has been recommended to ensure the proposals compliance with the Environmental (Noise) Regulations 1997 through the requirement of a Noise Management Plan.

Planning and Development (Local Planning Schemes) Regulations 2015

The City is to have due regard to the matters contained under Clause 67 of the *Planning and Development (Local Planning Schemes) Regulations 2015* when exercising its discretion and the following matters are considered most relevant against this application:

(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;

- (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;
- (c) any approved State planning policy;
- (g) any local planning policy for the Scheme area;
- (m) the compatibility of the development with its setting, including
 - (i) the compatibility of the development with the desired future character of its setting; and
 - 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;
- (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;
- (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;
- (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:
- (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;

The City is satisfied the proposed development will be capable of achieving the above considerations subject to the necessary conditions and advice notes.

Office Comments:

Primary Street Setback Variation

The proposed development seeks a variation to the setbacks prescribed by LPS3 and LPP19, with a proposed primary street setback to Office 1 of 5.785 metres and Office

2 of 6.297m in lieu of 15.0 metres. The intent of the setback provisions are to ensure there is an appropriate distance from the road to accommodate for landscaping, access, and parking, to reduce the impact of the building on the street and to contribute to the quality and character of the streetscape. The proposed setback variation allows for the proposed Offices to be located external to the warehouse and presents an opportunity for additional articulation to the streetscape. Noting the current design issues have been conditioned, the City believes the proposed variation will be acceptable once the design component of the offices has been addressed in accordance with Condition 7.

Whilst acknowledging the intent of the setback provisions prescribed under LPP 19, it is important to consider the proposed development on its merits. In this instance, the office component has the opportunity to provide articulation to the streetscape and coordinate with the landscaping to provide a more interesting and attractive streetscape.

Further, the proposed setback variations do not impact the provision of landscaping, access and parking. The City is satisfied that the variation will not result in an increase in bulk and scale on the streetscape and is therefore supportive of the reduced primary street setback variation.

Traffic Assessment

The applicant has provided a Transport Impact Assessment to support the proposed development and the design of the access and vehicle circulation. The TIA also provided a detailed assessment against the impacts of the development on the transport network and intersections within the MKSEA precinct.

Scenario 1 was used as a base for existing movements (as of 2020) with scenario 2 illustrating the impacts once the proposed development was operational and scenario 3 illustrated the impacts with the whole of MKSEA (Precinct 3A, 3B and 3C) developed (in 2031/33) Whilst scenario 3 indicates that if no changes are made to intersections (upgrades), the level of service will be either operating at capacity or result in a breakdown in vehicular flow, there are mitigation measures proposed, and should be considered with the knowledge that the Welshpool Road East/Coldwell Road intersection upgrades are being designed and progressed. Further, scenario 2 indicates negligible effect to the performance of intersections (as a result of the proposed development). Therefore, the City is supportive of the development and the impact on the wider transport network.

Further, based on the City's engineers comments the proposed vehicle circulation and access movements are deemed acceptable. Condition 18 requires the recommendations of the TIA to be implemented in order to reinforce the necessary traffic requirements.

<u>Draft Local Planning Policy 33 – Tree Retention</u>

The City has prepared draft LPP33 that relates to tree retention and increasing canopy cover within the City of Kalamunda. The City has experienced a decline in tree canopy and is therefore developing strategies and policies aimed at reducing the loss of trees and associated negative impacts.

Draft LPP33 requires a minimum canopy cover at maturity of 10% based on the total site area within industrial areas. The proposed landscaping generally exceeds the

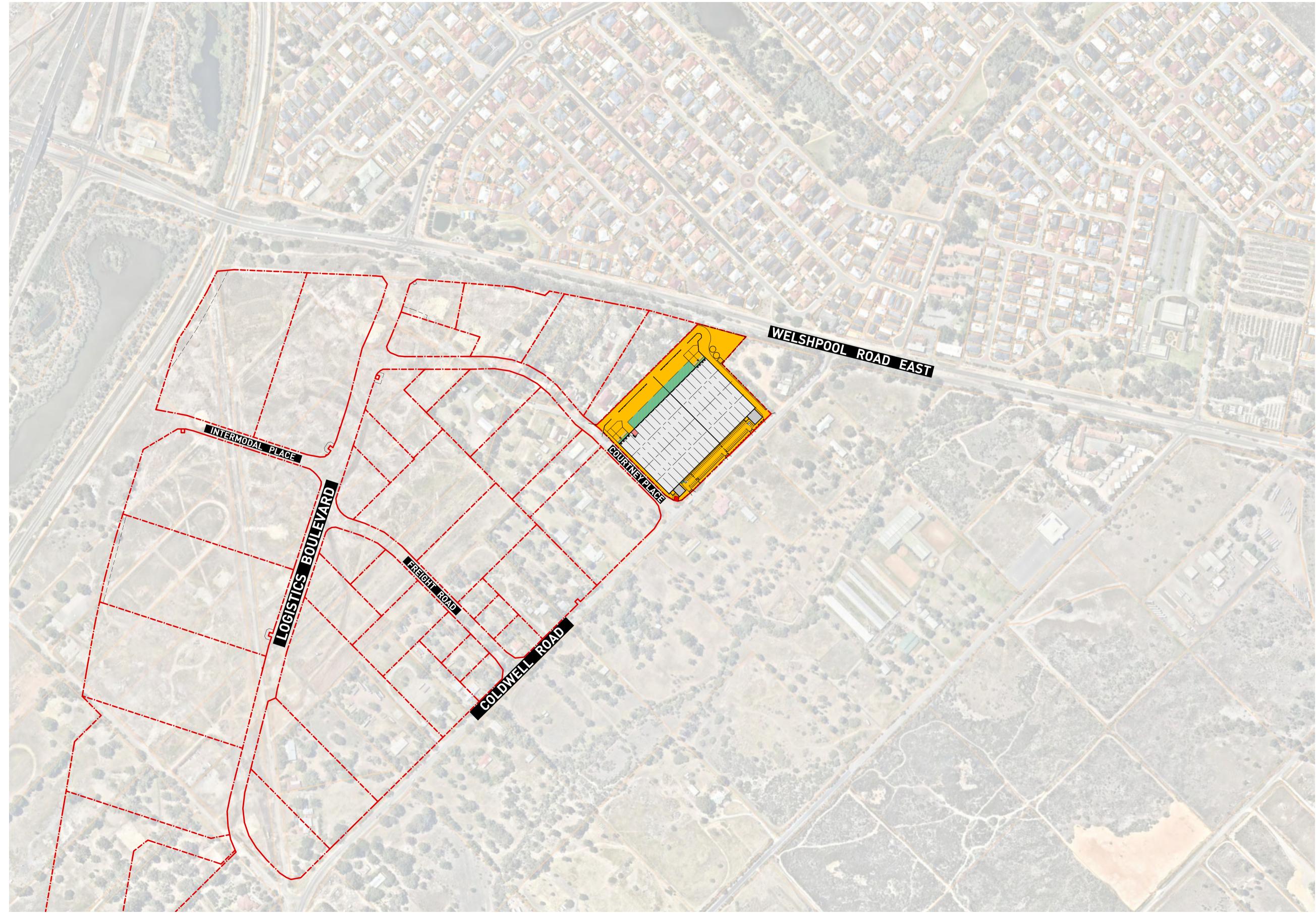
requirements of the LPP19 particularly within regard to the 5% landscaping area and 3m landscaping strip. An assessment of the tree canopy cover at maturity on-site indicates a much lower 5.5% tree canopy cover at maturity than the 10% target. Given the nature of the use and the fact the development is generally compliant with design guidelines it is deemed acceptable that the canopy cover will be less than the 10% target. There is also opportunity for additional planting within the drainage basin which could increase the maturity canopy cover. The City is satisfied the landscaping proposal despite the requirements of the draft local planning policy not being full met.

Conclusion:

The proposal has been assessed against the relevant statutory planning framework and is considered to generally meet the relevant provisions and objectives, specifically noting the proposal achieves the objectives of the "Light Industry" zone.

In view of the above, it is recommended the Metro Outer JDAP approve the application subject to the conditions and advice notes recommended in this RAR.





SUBJECT SITE



PROPOSED ESTATE

- NOTE:

 This concept plan is intended for Development and the concept plan is intended for Development All setbacks, site coverage, car parking numbers, landscape areas and the like are subject to statutory approval.
- No assurance is given as to the features, attributes, feasibility or accuracy of anything shown on or disclosed in this plan.
- All existing & proposed features, dimensions, areas and boundaries are approximate only and subject to verification via detailed site survey by licensed

Locality Plan

Drawing Type: Development Application **Drawing No:** DA-001(B)

Project No: 2209-147

Date: 09.08.2022

Scale: 1:3000 @ A1

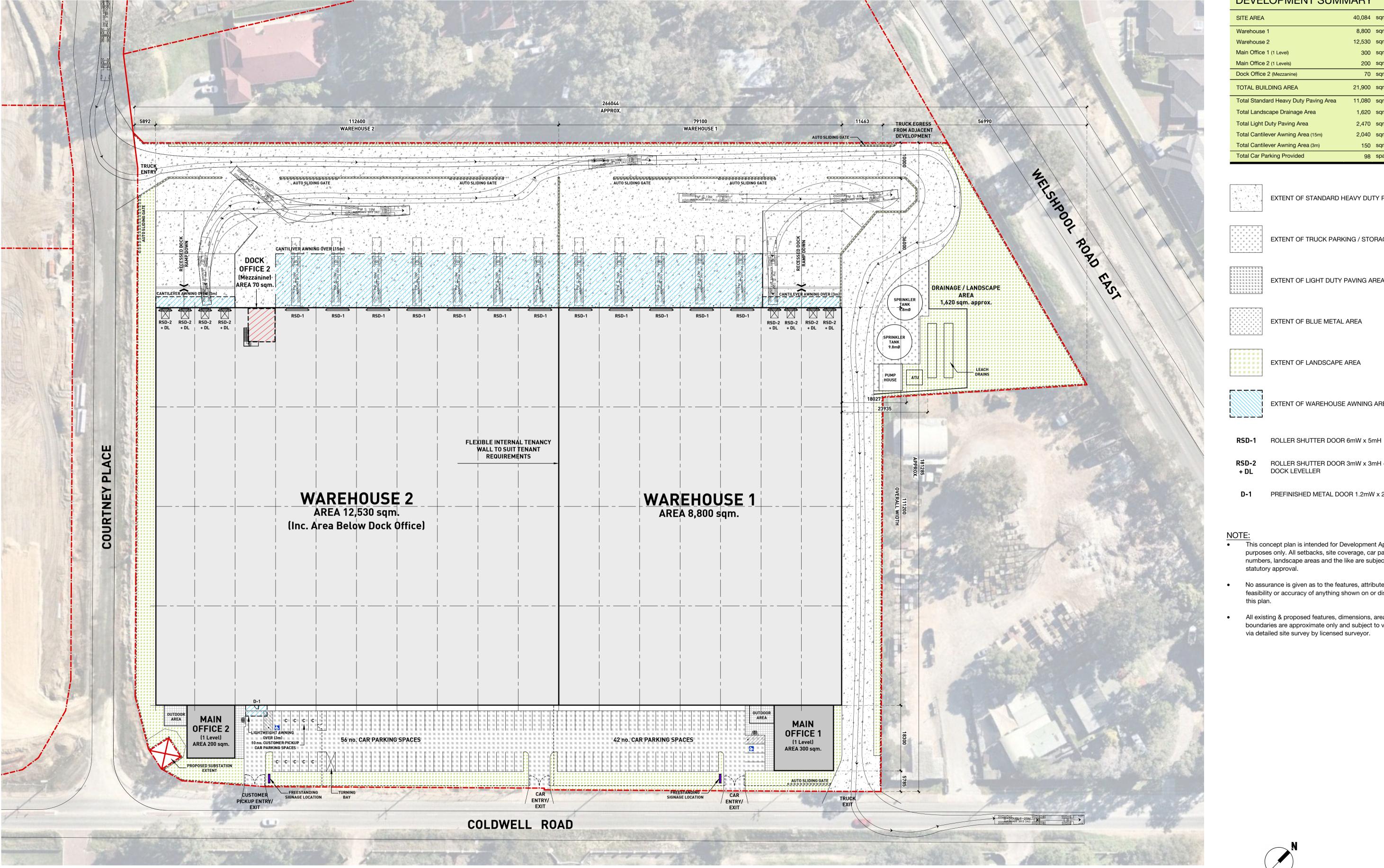








dimensions on drawings are approximate only and are subject to confirmation by survey.



Drawing Type: Development Application **Drawing No:** DA-002(F)

DEVELOPMENT SUMMARY

SITE AREA	40,084	sqm. approx.
Warehouse 1	8,800	sqm.
Warehouse 2	12,530	sqm.
Main Office 1 (1 Level)	300	sqm.
Main Office 2 (1 Levels)	200	sqm.
Dock Office 2 (Mezzanine)	70	sqm.
TOTAL BUILDING AREA	21,900	sqm.
Total Standard Heavy Duty Paving Area	11,080	sqm. approx.
Total Landscape Drainage Area	1,620	sqm. approx.
Total Light Duty Paving Area	2,470	sqm. approx.
Total Cantilever Awning Area (15m)	2,040	sqm. approx.
Total Cantilever Awning Area (3m)	150	sqm. approx.
Total Car Parking Provided	98	spaces

EXTENT OF STANDARD HEAVY DUTY PAVING AREA







EXTENT OF LANDSCAPE AREA

EXTENT OF WAREHOUSE AWNING AREA

ROLLER SHUTTER DOOR 3mW x 3mH + DOCK LEVELLER

PREFINISHED METAL DOOR 1.2mW x 2.4mH

- This concept plan is intended for Development Application purposes only. All setbacks, site coverage, car parking numbers, landscape areas and the like are subject to statutory approval.
- No assurance is given as to the features, attributes, feasibility or accuracy of anything shown on or disclosed in
- All existing & proposed features, dimensions, areas and boundaries are approximate only and subject to verification via detailed site survey by licensed surveyor.

Date: 26.10.2022

Project No: 2209-147



Scale: 1:500 @ A1

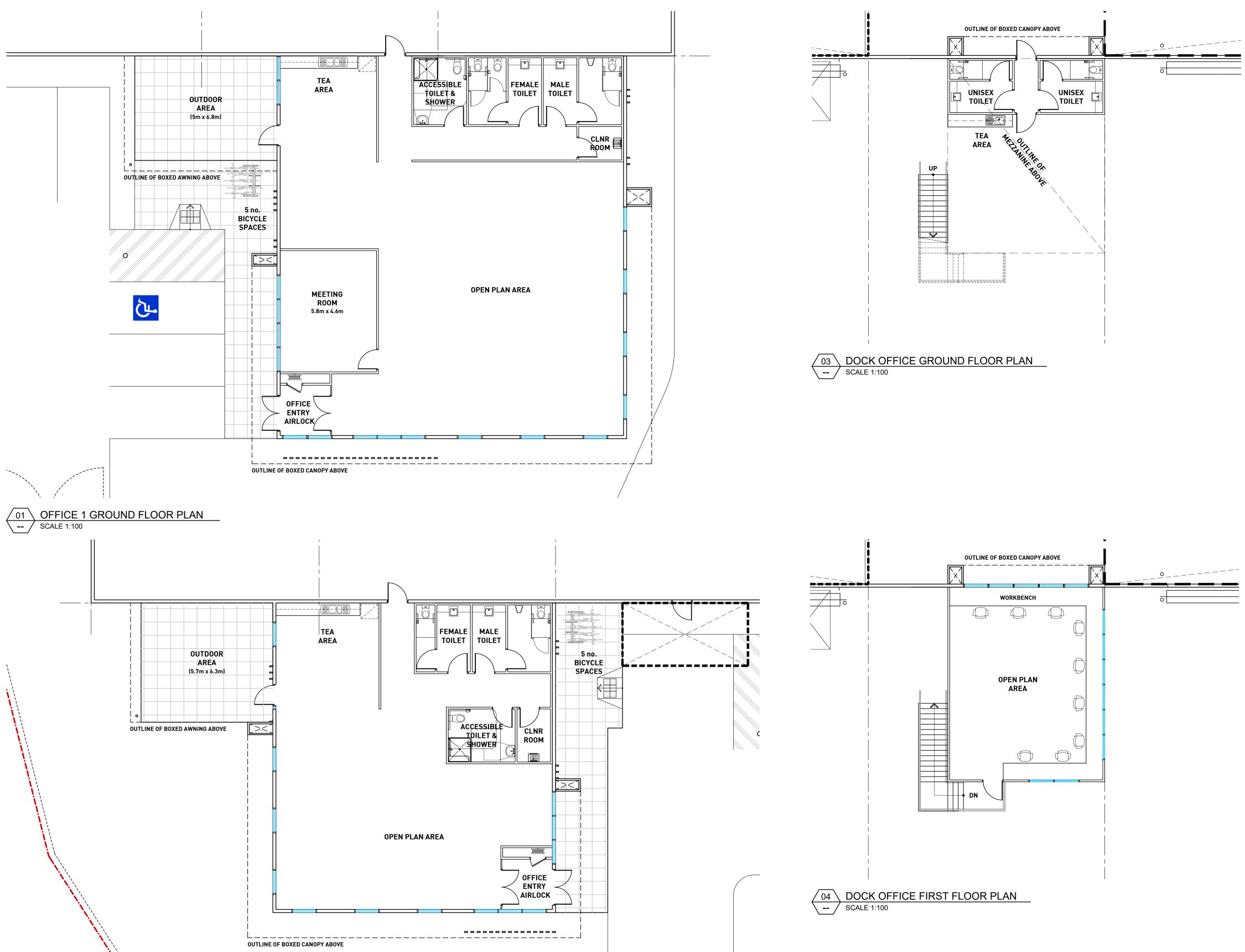


Site Plan

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Office Plan

OFFICE 2 GROUND FLOOR PLAN
SCALE 1:100

Drawing Type: Development Application **Drawing No:** DA-100(B)

Project No: 2209-147

Date: 27.07.2022

Scale: 1:100 @ A1

PROPOSED DEVELOPMENT

Roe Highway Logistics Park, Kenwick WA







• This concept plan is intended for Development Application purposes only. All setbacks, site coverage, car parking numbers, landscape areas and

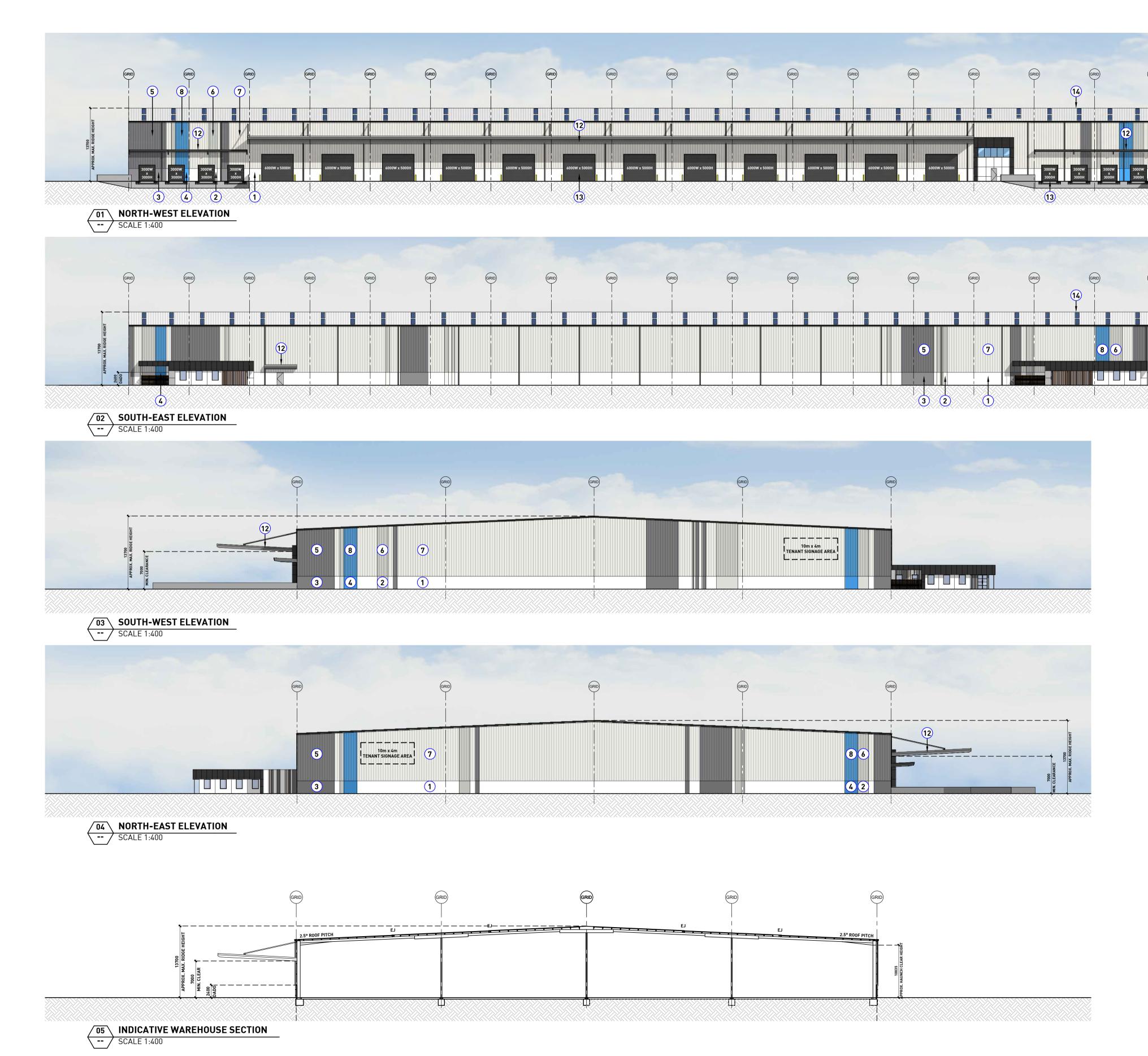
• All existing & proposed features, dimensions, areas and boundaries are approximate only and subject to verification via detailed site survey by

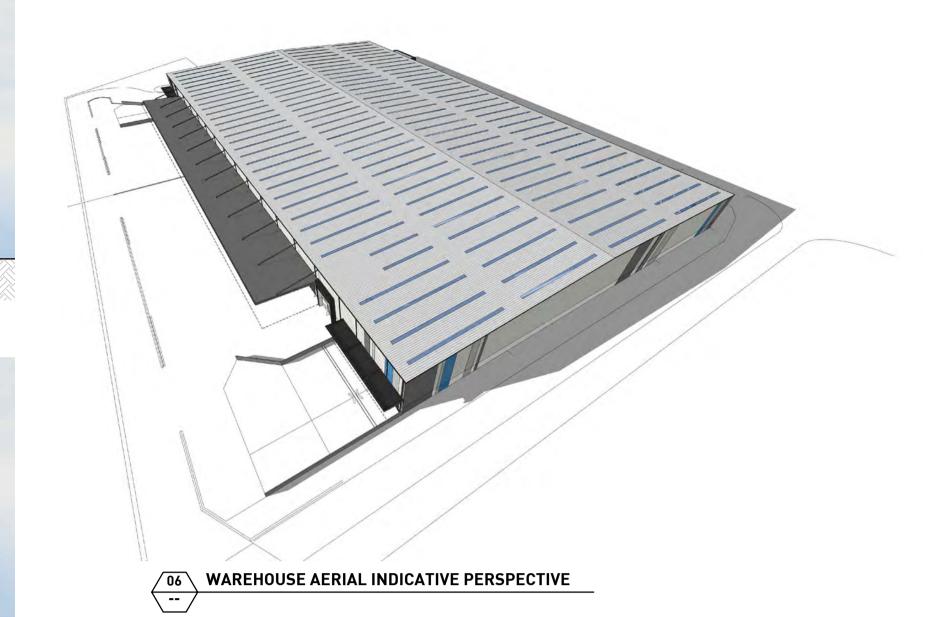
No assurance is given as to the features, attributes, feasibility or

accuracy of anything shown on or disclosed in this plan.

the like are subject to statutory approval.

licensed surveyor.





	MATERIAL AND COLOUR SCHEDULE						
NO.	ITEM/ LOCATION	MATERIAL/ DESCRIPTION	FINISHES				
1	PRECAST CONCRETE PANEL	PRECAST CONCRETE PANELS IN WHITE PAINT FINISH.					
2	PRECAST CONCRETE PANEL	PRECAST CONCRETE PANELS IN LIGHT GREY PAINT FINISH.					
3	PRECAST CONCRETE PANEL	PRECAST CONCRETE PANELS IN DARK GREY PAINT FINISH.					
4	PRECAST CONCRETE PANEL	PRECAST CONCRETE PANELS IN BLUE PAINT FINISH.					
5	METAL WALL CLADDING (VERTICAL)	WAREHOUSE METAL WALL CLADDING IN COLORBOND 'BASALT' FINISH OR EQUIVALENT.					
6	METAL WALL CLADDING (VERTICAL)	WAREHOUSE METAL WALL CLADDING IN COLORBOND 'SHALE GREY' FINISH OR EQUIVALENT.					
7	METAL WALL CLADDING (VERTICAL)	WAREHOUSE METAL WALL CLADDING IN COLORBOND 'SURFMIST' FINISH OR EQUIVALENT.					
8	METAL WALL CLADDING (VERTICAL)	WAREHOUSE METAL WALL CLADDING IN SELECTED BLUE FINISH OR EQUIVALENT.					
9	OFFICE BOX-OUT	STEEL FRAMED OFFICE FEATURE BOX-OUT IN NON-COMBUSTIBLE METALLIC CLADDING IN MANUFACTURER'S STANDARD BLACK FINISH.					
10	ALUMINUM FINS	FEATURE VERTICAL ALUMINUM BLADE FINS IN TIMBER LOOK FINISH					
11	OFFICE GLAZING SUITE	ALUMINIUM FRAMED OFFICE GLAZING SUITE IN SELECTED POWDERCOAT FINISH.					
12	AWNING	STEEL FRAMED WAREHOUSE AWNING IN SELECTED DARK GRAY PAINT FINISH					
13	ROLLER SHUTTER DOOR	METAL ROLLER SHUTTER DOORS IN POWDERCOAT FINISH TO MATCH COLOURBOND 'MONUMENT'.					
14	METALLIC ROOF SHEETING	IN ZINCALUME FINISH WITH TRANSLUCENT ROOF SHEETING TO APPROX. 10% OF ROOF AREA.					
15	OUTDOOR AREA	1800mm HIGH OUTDOOR AREA SCREENING IN SELECTED MODWOOD SLATS.	617				
16	SOFFIT LINING	NON-COMBUSTIBLE ALUMINUM CLADDING IN WHITE FINISH					

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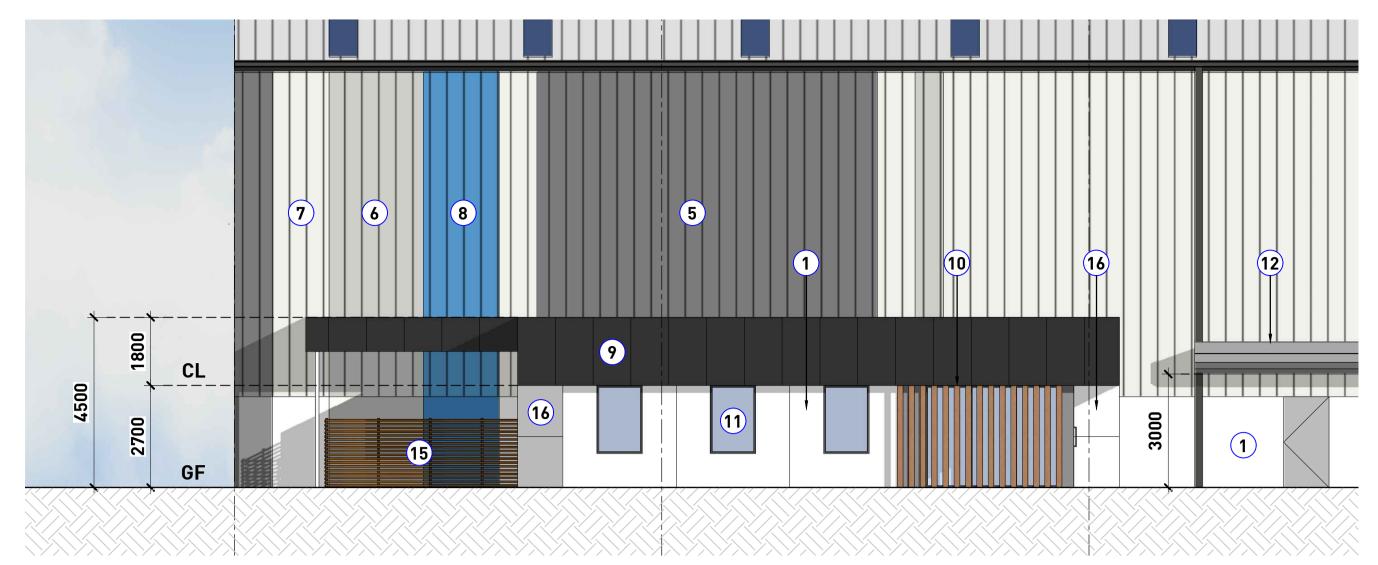
Warehouse Elevations **Drawing Type:** Development Application **Project No:** 2209-147 **Date:** 25.11.2022 **Scale:** 1:400 @ A1/ 1:800 @ A3 **Drawing No:** DA-200(D)

PROPOSED DEVELOPMENT





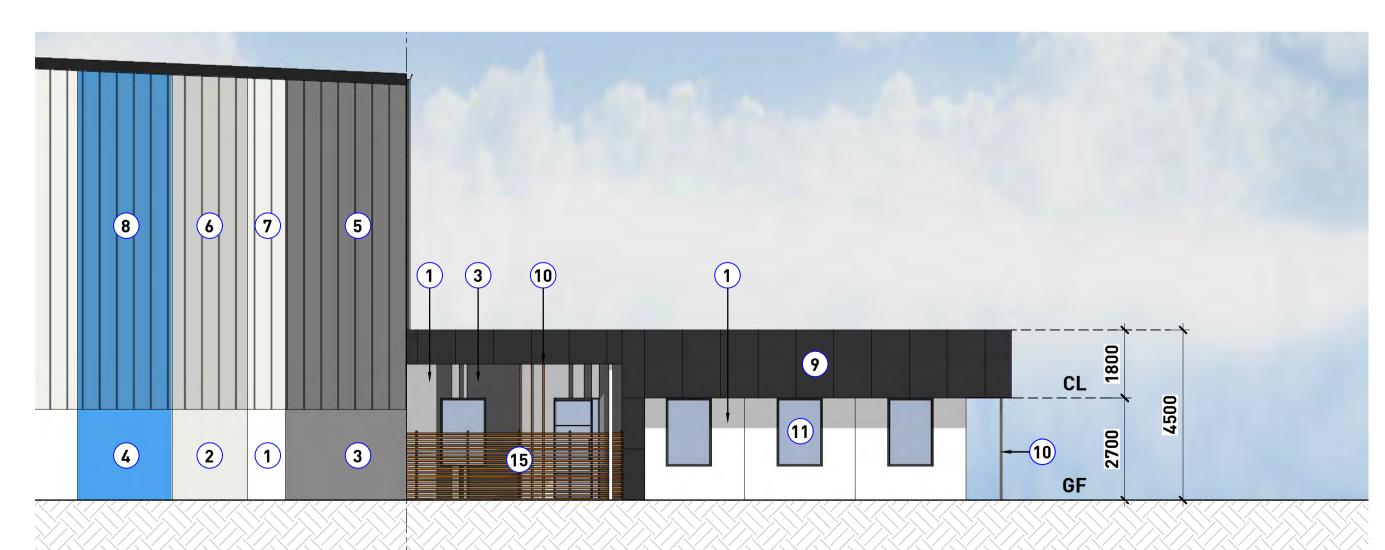




OT OFFICE 2 SOUTH-EAST ELEVATION
-- SCALE 1:100

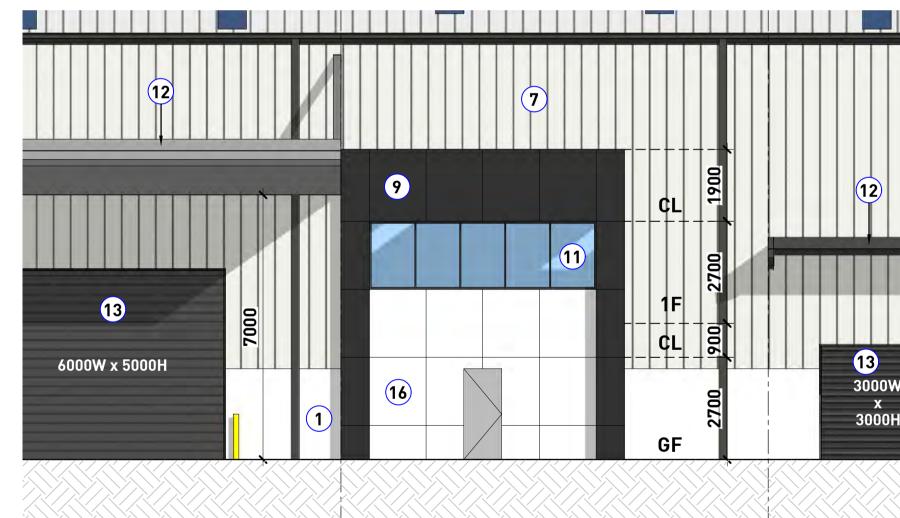


O2 OFFICE 2 NORTH-EAST ELEVATION
-- SCALE 1:100





04 OFFICE 2 INDICATIVE PERSPECTIVE



DOCK OFFICE NORTH-WEST ELEVATION

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	MATERIAL AND COLOUR SCHEDULE				
NO.	ITEM/ LOCATION	MATERIAL/ DESCRIPTION	FINISHES		
1	PRECAST CONCRETE PANEL	PRECAST CONCRETE PANELS IN WHITE PAINT FINISH.			
2	PRECAST CONCRETE PANEL	PRECAST CONCRETE PANELS IN LIGHT GREY PAINT FINISH.			
3	PRECAST CONCRETE PANEL	PRECAST CONCRETE PANELS IN DARK GREY PAINT FINISH.			
4	PRECAST CONCRETE PANEL	PRECAST CONCRETE PANELS IN BLUE PAINT FINISH.			
5	METAL WALL CLADDING (VERTICAL)	WAREHOUSE METAL WALL CLADDING IN COLORBOND 'BASALT' FINISH OR EQUIVALENT.			
6	METAL WALL CLADDING (VERTICAL)	WAREHOUSE METAL WALL CLADDING IN COLORBOND 'SHALE GREY' FINISH OR EQUIVALENT.			
7	METAL WALL CLADDING (VERTICAL)	WAREHOUSE METAL WALL CLADDING IN COLORBOND 'SURFMIST' FINISH OR EQUIVALENT.			
8	METAL WALL CLADDING (VERTICAL)	WAREHOUSE METAL WALL CLADDING IN SELECTED BLUE FINISH OR EQUIVALENT.			
9	OFFICE BOX-OUT	STEEL FRAMED OFFICE FEATURE BOX-OUT IN NON-COMBUSTIBLE METALLIC CLADDING IN MANUFACTURER'S STANDARD BLACK FINISH.			
10	ALUMINUM FINS	FEATURE VERTICAL ALUMINUM BLADE FINS IN TIMBER LOOK FINISH			
11	OFFICE GLAZING SUITE	ALUMINIUM FRAMED OFFICE GLAZING SUITE IN SELECTED POWDERCOAT FINISH.			
12	AWNING	STEEL FRAMED WAREHOUSE AWNING IN SELECTED DARK GRAY PAINT FINISH			
13	ROLLER SHUTTER DOOR	METAL ROLLER SHUTTER DOORS IN POWDERCOAT FINISH TO MATCH COLOURBOND 'MONUMENT'.			
14	METALLIC ROOF SHEETING	IN ZINCALUME FINISH WITH TRANSLUCENT ROOF SHEETING TO APPROX. 10% OF ROOF AREA.			
15	OUTDOOR AREA	1800mm HIGH OUTDOOR AREA SCREENING IN SELECTED MODWOOD SLATS.			
16	SOFFIT LINING	NON-COMBUSTIBLE ALUMINUM CLADDING IN WHITE FINISH			

OS OFFICE 2 SOUTH-WEST ELEVATION

-- SCALE 1:100

Office 2 & Dock Office Elevations

Drawing Type: Development Application

Drawing No: DA-201(D)

Project No: 2209-147

Date: 25.11.2022 **Scale:** 1:100 @ A1/ 1:200 @ A3



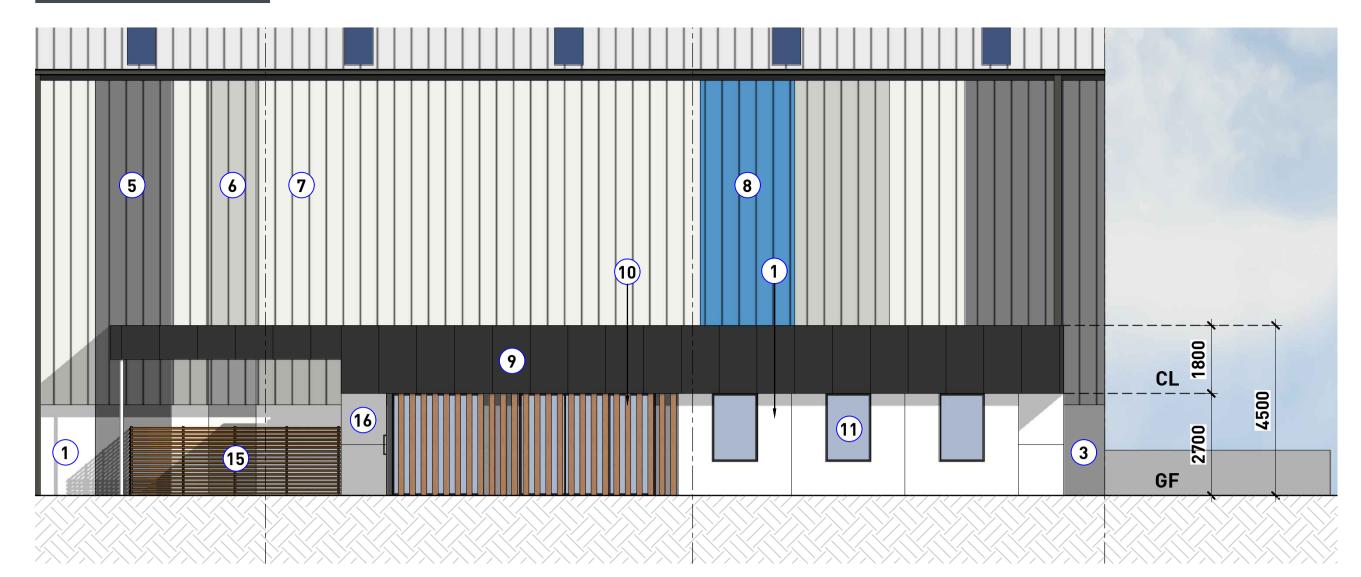












OT OFFICE 1 SOUTH-EAST ELEVATION
-- SCALE 1:100



O2 OFFICE 1 NORTH-EAST ELEVATION
-- SCALE 1:100



OSCALE 1:100

Office 1 Elevations **Drawing Type:** Development Application **Drawing No:** DA-202(D)

Project No: 2209-147

Date: 25.11.2022 **Scale:** 1:100 @ A1/ 1:200 @ A3



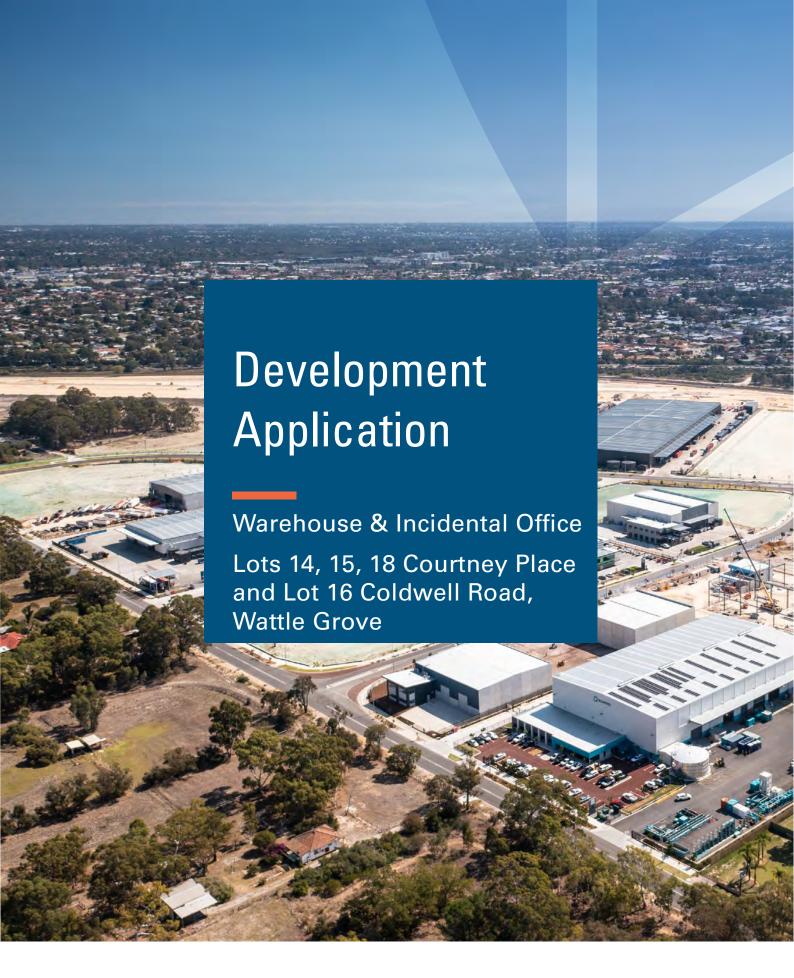
04 OFFICE 1 INDICATIVE PERSPECTIVE

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Prepared for Hesperia Property Pty Ltd
Prepared for consideration of the Metro Outer JDAP



Document Information

Development Application

Warehouse and Incidental Office

Lot 14, 15, 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove

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Doc ID: 15~073 HESPERIA DA Report - Warehouse - Coldwell-Courtney 1.0

Revision	Status	Author	Approved by	Date Issue
1		J McCallum	J Ross	23/8/2022

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1.0 Introduction

1.1 Introduction

Taylor Burrell Barnett, acting on behalf of our client Hesperia, has prepared this report in support of an application for development approval for the use and development of land on Lots 14, 15, 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove for the purpose of a Warehouse and Incidental Office.

The subject site falls within the City of Kalamunda, and as such this report has been prepared in accordance with the provisions of the City of Kalamunda *Local Planning Scheme No. 3* (LPS3).

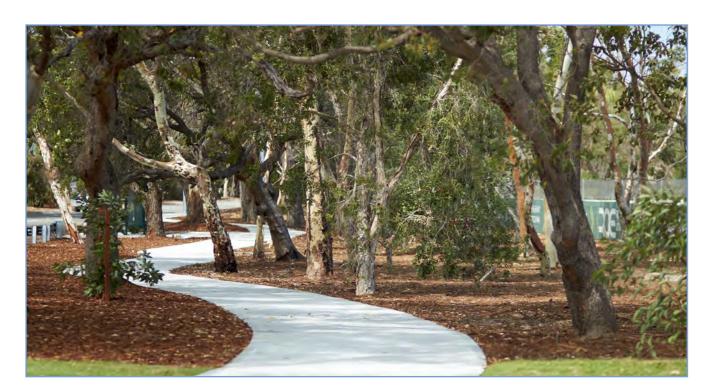
The subject application has been made to the Outer Metropolitan Joint Development Assessment Panel as an 'Opt-In' application in accordance with clause 6 of the Planning and Development (Development Assessment Panel) Regulations 2011.

The subject site is located in the area known as the Roe Highway Logistics Park. The subject site is comprised of four existing lots in the ownership of Roe 71 Pty Ltd and Planet Building Products Pty Ltd, who have authorised Hesperia Property to apply on their behalf.

The development proposal is for two warehouses and one incidental office per warehouse, with associated parking, access and landscaping areas. The facility will present to Coldwell Road with direct access and egress by light vehicles from Coldwell Road, and heavy vehicles access from Courtney Place, with egress to Coldwell Road.

The subject application is compatible with the recent land use approvals in the area and with the vision and intent of the Roe Highway Logistics Park and the *Kalamunda Wedge Industrial Area Design Guidelines* (Design Guidelines).

Construction of the facility is scheduled to commence in late 2022, following receipt of necessary planning and building permit approvals. Completion and occupation of the facility is anticipated to occur by mid 2023.



2.0 Site Context

2.1 Location

The subject site is located within the Maddington Kenwick Strategic Employment (MKSEA), which has been strategically planned for industrial development since the late 1990's.

The area is located in close proximity to major freight routes (Tonkin Highway, Roe Highway) and similar industrial areas including Kewdale/Welshpool, Forrestfield, Perth Airport and Hazelmere (**Figure 1**).

The site is located within Precinct 3A of MKSEA, known as the Roe Highway Logistics Park (RHLP), and is accessed via the newly constructed Logistics Boulevard and Welshpool Road East, as shown in **Figure 2**.

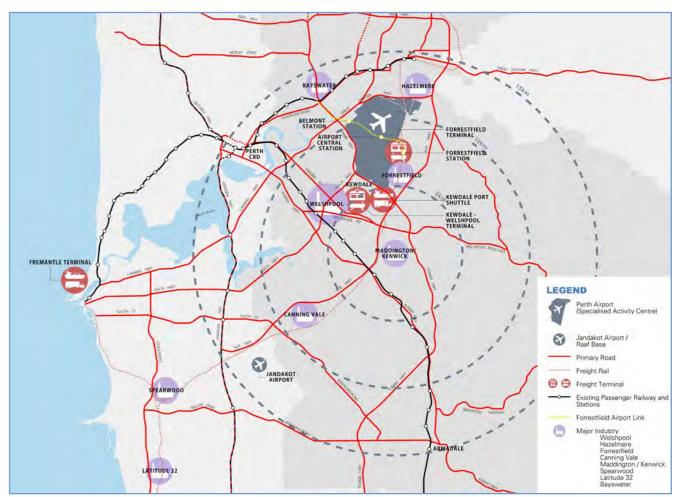


Figure 1: Metropolitan Context Plan - MKSEA precinct

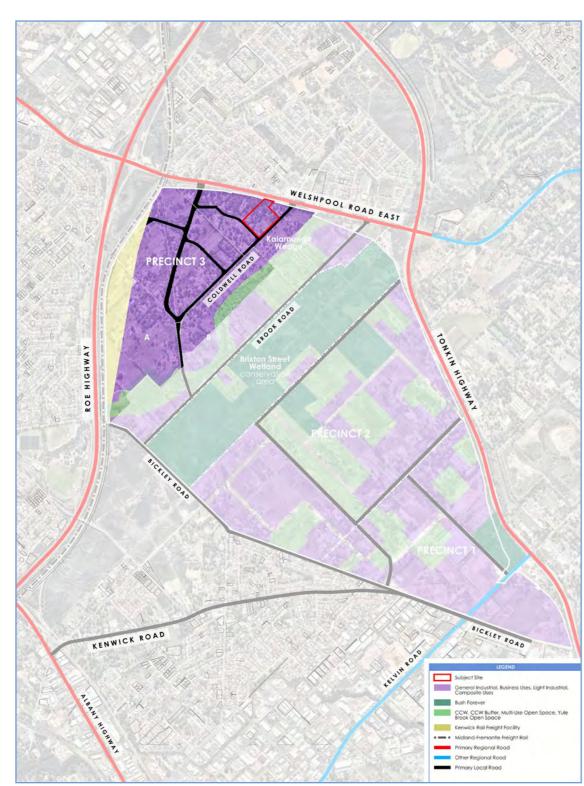


Figure 2: Regional Context Plan

2.2 Land Ownership

The subject sites are owned by Roe 71 Pty Ltd and Planet Building Products Pty Ltd, outlined in **Table 1** and evidenced by the Certificate of Title included as **Appendix 2**.

Letters of Authorisation for Hesperia Property to act on the landowners behalf are also included in **Appendix 2.**

Subject Site
Existing Cadastre

Table 1: Land Ownership Details

	Address	Owner	Plan	Volume	Folio	Lot Area
	Lot 14 (12) Courtney Place, Wattle Grove	ROE 71 Pty Ltd	68028	1657	611	1.006 ha
	Lot 15 (4) Courtney Place, Wattle Grove	ROE 71 Pty Ltd	65524	1656	697	1.005 ha
	Lot 16 (12) Codwell Road, Wattle Grove	Planet Building Products Pty Ltd	65525	1657	612	1.006 ha
	Lot 18 (16) Courtney Place, Wattle Grove	Planet Building Products Pty Ltd	65525	1657	614	1.0645 ha



Figure 3: Land parcel details for the subject site.

3.0 Planning Framework

3.1 Metropolitan Region Scheme

The subject site is zoned 'Industry' under the *Metropolitan Region Scheme* (MRS) (Figure 4), as is the entirety of the immediately surrounding area.

Abutting the subject site to the north is Welshpool Road East, which is identified as a 'Primary Regional Road' Reserve.

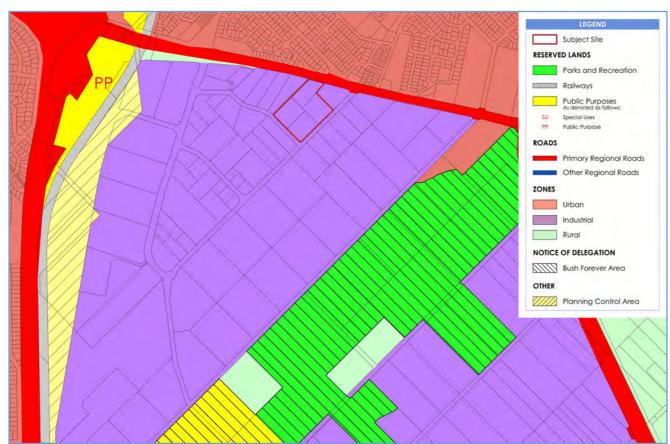


Figure 4: Metropolitan Region Scheme

3.2 City of Kalamunda Local Planning Scheme No. 3

The subject site is zoned 'Light Industry' under LPS3 (Figure 5).

The subject site is also within Special Control Area 6 'Kalamunda Wedge Precinct 3A', Clause 6.8 of LPS3 sets out the requirements for subdivision and/or development proposals within the Special Control Area, which include:

- Design guidelines adopted by the local government under Part 2 of the deemed provisions for development of land on lots directly fronting Welshpool Road East;
- A BAL assessment or BAL contour plan;
- Investigations into significant vegetation, flora or

fauna within the proposal area; and

A Local Water Management Strategy;

The above requirements have been addressed through subdivision applications within the area and some further detail is outlined later within this report.

Car parking requirements for individual land uses are set out under Table 3 of LPS3. Compliance with the relevant LPS3 development standards is further outlined in the Development Application section of this report.

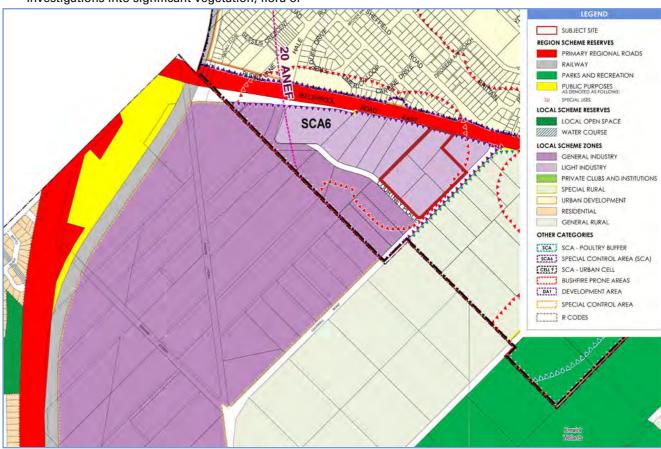


Figure 5: Local Planning Scheme No. 3 zoning of site and surrounds, with City of Gosnells Local Planning Scheme No. 6 zoning included for context

3.3 Subdivision Application

A subdivision application was lodged with the WAPC over the subject land on 25 July 2022. The subdivision proposed is largely consistent with an earlier approved subdivision proposal which realigns Courtney Place and provides for lots more conducive to industrial development.

Although the site location doesn't align with the subdivision application layout, this will be addressed as a deposited plan modification.

A Transport Impact Assessment (TIA) for the subdivision was prepared by Cardno, it is proposed that Courtney Place be realigned and upgraded to cater for the subdivision and maintained at a width of 18m, with the TIA demonstrating the sufficiency of the design of this road to meet the circulation and access needs for up to a RAV7 vehicle, which has been demonstrated as sufficient based on the subdivision design.

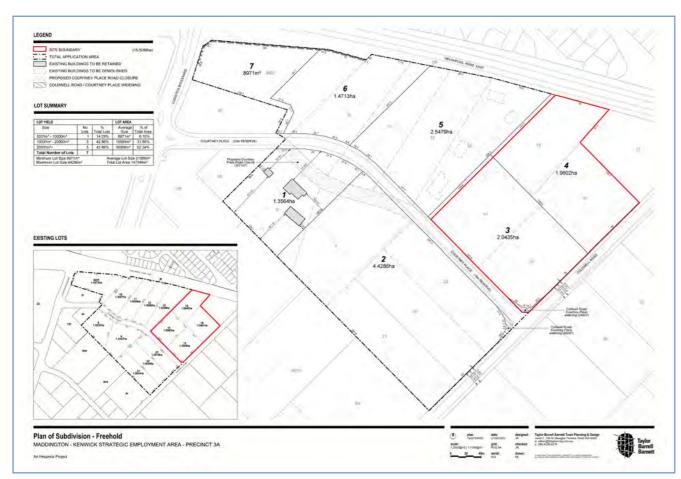


Figure 6: Site and subdivision context

3.4 Welshpool Road East Industrial Area Design Guidelines

The subject site is located within the area guided by the City's Welshpool Road East Industrial Area Design Guidelines (Design Guidelines) (2019) (Figure 7).

The Design Guidelines provide the following standards to guide built form and site design:

- A primary street setback of 15m;
- A 15m setback to Welshpool Road East;
- A minimum required landscaping strip of 3m to both Courtney Place and Welshpool Road East;
- Plot ratio in accordance with the Scheme requirements which equates to .5;

- Encouragement of contemporary design styles including variation in colours and materials and glazing to the street frontage;
- Car parking generally in accordance with the Scheme requirements; and
- Loading areas screened from the street.

The compliance of the application with the Design Guideline requirements is further outlined in the 'Development Application' section of this report.



Figure 7: Extract - Welshpool Road East Industrial Area Design Guidelines.

4.0 Development Proposal

4.1 Land Use

The subject application is for two 'Warehouse/Storage' uses and two incidental 'Office' uses, one associated with each Warehouse.

Warehouse is defined by the City of Kalamunda *Local Planning Scheme No. 3* as:

'Warehouse/Storage' means premises including indoor or outdoor facilities used for -

- a. the storage of goods, equipment, plant or materials; or
- b. the display or sale by wholesale of goods.

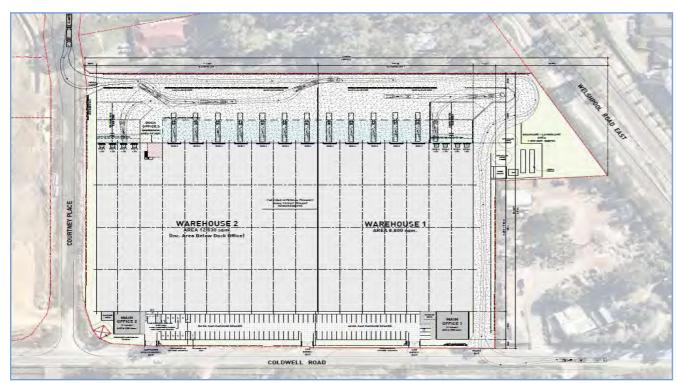
'Warehouse/Storage' is listed as a 'P' use under Table 1 - Zoning Table of LPS3, meaning the use is permitted.

Incidental use is defined by LPS3 as:

'Incidental Use' means a use of premises which is ancillary and subordinate to the predominant or primary use.

One incidental office use will be attached to each warehouse. One office of 200m² is proposed with a mezzanine, the other with a floorspace of 300m² and a first floor.

Each office building will accommodate a reception area, open offices, meeting rooms and amenities for staff operating from each warehouse.



Proposed development - site plan

4.2 Built Form

The application seeks approval for a total building area of 21,900m² as outlined in Appendix 1, and comprises the following development:

- Two warehouse buildings, including warehouse dock office (21,330m²);
- Two incidental offices (500m²);
- 98 car parking bays;
- 10 bicycle racks; and
- Two crossovers for truck entry and exit (one each) to facilitate heavy vehicle circulation around the site. With three crossovers for passenger vehicle entry/exit to the car park.

4.2.1 Warehouse

The primary building will be a constructed as a rectangular structure measuring approximately 1,917m in length and 1,110m in width, built to a ridge height of approximately 13.7m. The primary building will deliver two warehouses, with an internal wall which is able to be relocated as tenant demand dictates.

Table 2 provides details of the dimensions and areas for the warehouses and offices.

Table 2: Warehouse and Office dimensions

Building	Width	Length	Total Area	
Warehouse (1)	791m	1,120m	8,800m²	
Warehouse (2)	1,112m	1,120m	12,530m²	
Office (1)	16.7m	18.3m	300m²	
Office (2)	13.5m	14.7m	200m²	

Each Warehouse will be accessible along the north-western elevation via roller doors with pedestrian access via the two Offices. The warehouse is setback as follows:

- 18.3m from Coldwell Road
- 5.9m from Courtney Place
- 36m from the northern lot boundary
- 55m from Weslhpool Road East

The site enclosed by a 2.4m high black palisade fence. An automatic sliding gate to the entry and exit of the freight unloading area is to be constructed of the same material.

Manual gates are proposed at the passenger entry/exit crossovers.

The roof line of the warehouse will extended 15m northwest with a minimum height of 7m providing a cantilevered awning to shelter freight vehicles as they circulate the site and access loading points.

The facade of the warehouses will be constructed of a combination of painted concrete panels and metal sheet cladding in various corporate colours as shown on the elevations.

4.2.2 Incidental Office

The development includes two offices which are incidental to the warehouse and accommodate staff that provide administrative support and coordinate the operation of the warehouses.

Each office is proposed as a single storey rectangular structure to the south-eastern side of the warehouse, fronting the primary street interface. Office 1 is proposed to have a height of 4.5m and is setback 5.7m from Coldwell Road. Office 2 is proposed to have a height of 4.5m and is setback a minimum of 6.1m from Coldwell Road.

Table 2 provides details of the dimensions and area for each office.

Each office will be accessed via a primary entrance from the south-east, and a secondary access internal to the associated warehouse. The facade of the office will be constructed of a combination of painted concrete panels and metal wall cladding in various corporate colours as shown on the elevations, and is an extension of the warehouse aesthetic.

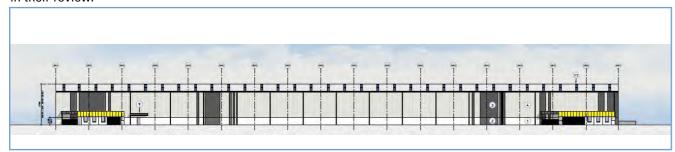
4.2.3 City of Kalamunda Design Guidelines

As outlined in section 3.4, the Welshpool Road East Industrial Area Design Guidelines are applicable, and an assessment against the relevant components of that policy has been undertaken in **Table 3** to assist the City in their review.

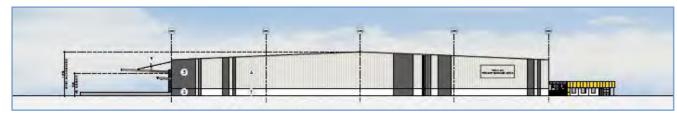
4.2.4 Signage

The submitted elevations indicatively shows two signs (10m x 4m) on each warehouse component, to ensure clear visibility of the business from its multiple street fronts and public vantage points. The site plan also includes an indicative location for future fresstanding signage.

Notwithstanding, signage is not proposed in this application and will be the









Elevations for the proposed office and warehouse, identifying the potential signage locations.

Clause	Consideration	Design Response
2.3.1	Building Design and Quality	The proposed design provides a level of vertical articulation and changes in materials and colours to avoid a rigid, uniform outcome. Glazing has been provided to the primary street via the office frontages.
2.3.2	Building Orientation	The proposed primary building orientation is to Coldwell Road, generally in accordance with the requirements of the Design Guidelines. The Courtney Place elevation is visually defined by alternating material treatments.
2.3.3	Building Setback	The building setback of the Warehouse exceeds the design guideline minimums as required by the primary and secondary frontages. It is noted that the incidental offices project into primary setback, however as the Offices contribute approximately 15% of the Coldwell Road frontage it is considered the projection is negligible and does not affect the the broader streetscape.
2.3.4	End of Trip Facilities	The development includes end of trip facilities to accommodate the needs of staff, which are located in the office area, sufficient to meet the anticipated employment numbers.
2.3.5	Parking and Access	The proposal aligns with the guidelines for the purpose of access and egress, but includes a minor variation to the minimum parking requirements which is further discussed within the submitted Tramsport Impact Assessment.
2.3.6	Loading Areas	The loading area is designed to reduce prominence from both Courtney Place and Welshpool Road East while maintaining the ability for access and egress in forward gear.
2.3.7	Signage	Signage is not proposed as a component of this application and will be the subject of a future application. Notwithstanding, indicative locations are shown on warehouse elevations.
2.3.8	External Lighting	External lighting of the facility is consistent with the development controls under the Design Guidelines.
2.3.9	Crossovers	One crossover is proposed to Courtney Place for heavy vehicles. Four crossovers are proposed on Coldwell Road, one for heavy vehicle egress and three for safe movement of passenger vehicles.
2.3.10	Fencing	The development proposes black powdercoat palisade fencing to Courtney Place and Welshpool Road East and chainlink fencing to all side boundaries.
2.3.11	Stormwater Management	On site stormwater management meets the development control requirements of the Design Guidelines, as further outlined in Section 4.4.
2.3.12	Waste Management	Bulk rubbish bins are to be stored inside the warehouse when not being collected.
2.4	Welshpool Road East Interface	Development includes landscaping adjacent to the Welshpool Road East lot boundary and meets requirements for setbacks and fencing.
2.5.1	On site Landscaping	On site landscaping is proposed consistent with the Design Guidelines as further outlined in Section 4.4.
2.5.2	Verge Amenity	Verge amenity is proposed consistent with the Design Guidelines as further outlined in Section 4.4.

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4.3 Access, Circulation and Parking

This application is supported by a Traffic Impact Assessment (TIA) included as **Appendix 3**. The following summarises the key matters for consideration as a component of this development application.

4.3.1 Site Access

The subject site will be accessed via Coldwell Road and Courtney Place. The local road network is serviced by the recently constructed Logistics Boulevard / Welshpool Road East intersection (Figure 9).

4.3.2 Passenger Car Access / Parking

Access and egress for passenger vehicles will be gained via crossovers from Coldwell Road servicing all employee and visitor movements.

The development provides for a total of 98 parking bays, inclusive of two ACROD bays, which will be used for employees of the warehouses, offices and visitors attending the site.

The site will have a maximum of 48 employees on site at any one time, and is anticipated to have no more than eight visitors attending the site at any one time to collect or park a trailer or heavy vehicle.

The LPS3 requirement for car parking for a 'Warehouse' land use states:

3 bays for up to the first 200m² of floor area and thereafter 1 bay for every 100m² of NLA or part thereof

On the basis of the LPS3 requirements the subject development would require 214 car parking bays in accordance with the calculations outlined in **Table 4**.

Whilst the provision of parking represents a 56% shortfall in the required parking, this is considered to be warranted given the size of the warehouse, estimated staffing and the eanticiapted peak demand for car parking on site.

Table 4: Parking assessment

Assumption	Car Parking Requirement	
Warel	house	
21,330m² gross floor area	214 bays	
Total Bays Required	214 bays	
Total Bays Provided	98 bays	
Proposed Shortfall	116 bays	

With 98 parking bays the subject site can accommodate all 48 of their employees in addition to a maximum estimate of eight visitors at one time.

Given the number of employees, visitors and the nature of the development, there is sufficient car parking provided for the proposed land use and development. This is further supported by the TIA outlined in **Appendix 3**.

4.3.3 Commercial Vehicle Access/Circulation

The proposed development provides for dedicated access and egress crossovers for commercial vehicles and sufficient hardstand area to facilitate internal circulation.

As per the TIA prepared by Stantec, the largest vehicle expected to access the site is a 19m semi-trailer and the swept path for typical entry and exit movements is shown in **Appendix 3**.



Figure 8: Ultimate access arrangements

4.4 Landscaping and Site Drainage

4.4.1 Landscape

The landscape approach reflects the stormwater management requirements for the site (Figure 9). Bio-retention swale areas will be vegetated with native reeds and sedge planting mix to provide nutrient stripping to swale basins.

While nutrient concentrations in stormwater are expected to be low these would also be retained and treated by the proposed vegetation.

The balance of landscaped areas will be treated to provide a high amenity value to the site. This will include areas of irrigated low planting to provide lush green vegetation year round, in addition to the City of Kalamunda requirements, as follows:

- 1 x 100L tree per 10m of street frontage within the primary street interface; and
- 1 x 100L tree per 4 parking bays within the car parking area.

Refer attached concept landscaping layout in Figure 9 and Appendix 4.

4.4.2 Site Drainage

The management of water within the site will meet the objectives specified in the Local Water Management Strategy for surface water and groundwater. For surface water the primary flow objectives are to ensure that the site detains 350m³/ha and limits discharge from the site to 36L/s/ha in a 100 year ARI event.

The storage of rainfall events will be achieved by a combination of:

- multiple controlled drainage pits, restricting discharge into the road drainage network via a pit and pipe network; and
- Seven bioretention basins located predominately along side boundaries.

Refer attached concept drainage layout in **Figure 9** and **Appendix 4**.

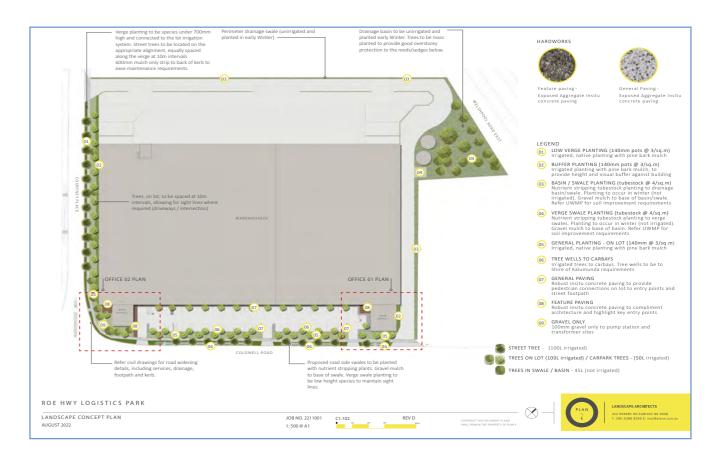


Figure 9: Landscape Plan

4.5 Essential Services

4.5.1 Water

Connection to scheme water will be provided to the subject site in accordance with the condition of subdivision approval. This will be installed and operational prior to occupation of the subject development.

4.5.2 Electricity

Connection to the Western Power grid will be provided to the subject site via the existing installed network.

4.5.3 Natural Gas

Natural gas can be connected to the subject site if the reticulated gas network is extended throughout the subdivision area. The extension of this reticulation has not yet been determined, and is not required as a component of the subject development.

4.5.4 Telecommunications

The National Broadband Network (NBN) has been extended throughout the MKSEA Precinct 3A subdivision area as a component of subdivision works, and will be installed as a component of the subject development.

4.5.5 Waste Management

Refuse will be managed by the Tenants through a number of bulk bins proposed to be stored adjacent to the northern facade of the warehouse.

4.5.6 Wastewater

The toilets and kitchens within the development will be connected to and serviced by an Aquarius O-2NR 4KL Concrete Commercial Anaerobic Treatment Unit (ATU) up to 4,000L per day.

The O-2NR 4KL ATU is more than adequate to accommodate the wastewater flows of the subject development, refer to **Table 5**.

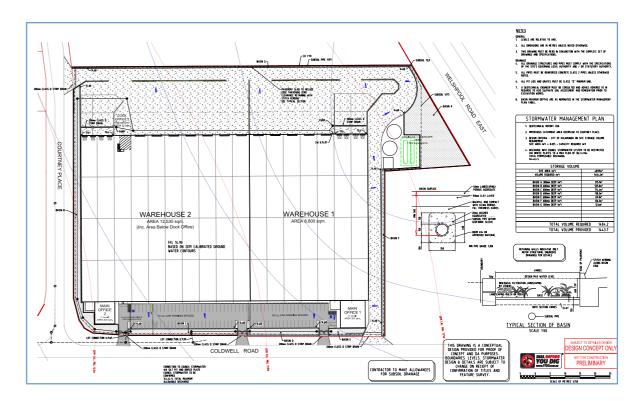
Table 5: Wasterwater flow rates

Source	Rate (Per person/per day	Total Volume (Litres per day)
30 Warehouse Employees (Showering)	30 x 70L	2,100L
42 Office Staff (Non-showering)	18 x 30L	540L
5 x Visitors	8 x 10L	80L
Total	2,720L	

The ATU is manufactured using concrete tanks and is outlined in **Figure 10**. The ATU will have a footprint of approximately 4.5m (L) x 4.2m (W) as depicted on the site plan, and will discharge into two nearby leach drains measuring 5.0m x 2.1m each.

An application for the proposed ATU and Leach Drains are to be separately lodged with the City of Kalamunda in anticipation of the development approval being granted, and will be determined separately in due course.

A Geotechnical Investigation has previously been submitted and approved for the site by both local governments, and as a result has not been reattached to this proposal.



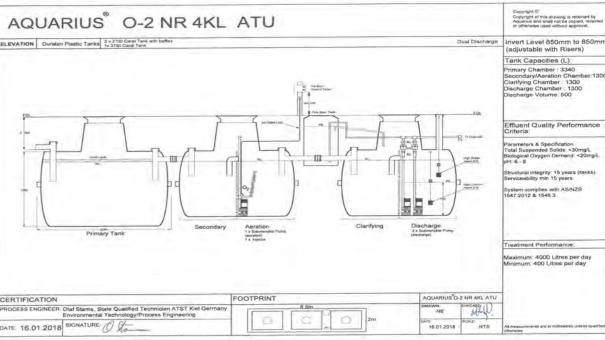


Figure 10: Stormwater Plan and Aquarius 0-2 NR 4KL ATU

4.6 Bushfire Management

The subject site is considered as part of a Bushfire Management Plan (BMP) which has been prepared an submitted with an adjacent subdivision application.

This assessment notes that the majority of the vegetation to the east and south-east of the subject site has now been cleared to make way for industrial development, and as such the threat applicable to the subject site has been removed. The associated BAL Plan is included as **Figure 11**.

Whilst BAL ratings do not apply to industrial type buildings, the BMP identified that industrial buildings were not to be located within areas where BAL-29 is exceeded.

The subject development confirms this requirement, as the surrounding area has been cleared and graded in the implementation of the subdivision application, providing post development BAL ratings in accordance with **Figure 11**.

Based on the BMP, no portion of the proposed warehouse or incidental offices are located within areas where BAL-29 is exceeded.

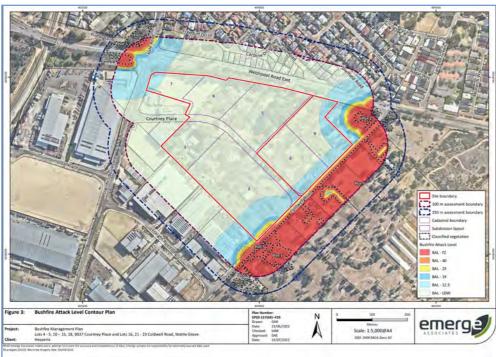


Figure 11: BAL Assessment undertaken on the basis of the proposed development within its surrounding context.

5.0 Conclusion

The subject development is intended to be the next stage for the new Roe Highway Logistics Park, and will showcase the high standard of industrial development that Hesperia continues to develop within the Estate.

It is considered that the subject proposal is in accordance with best practice standards and all relevant requirements of the City of Kalamunda and WAPC planning frameworks, and as a result should be supported by the Outer Metropolitan Joint Development Assessment Panel.



Development Plans and Elevations



Certificate of Title





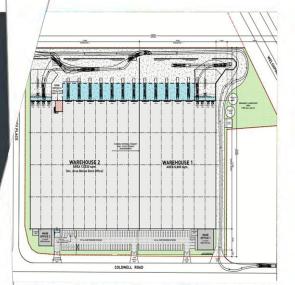
Transport Impact Assessment

Proposed Warehouses and Incidental Offices - Lots 16, 18 and 102 Coldwell Road, Wattle Grove

CW1200369 / 304900766

Prepared for Hesperia Pty Ltd

31 October 2022





now





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В	18/08/2022	Minor Update	RR	SGL
С	10/10/2022	Bicycle Parking Update	RR	SGL
D	13/10/2022	Swept Path Update	RR	SGL
E	31 Oct 2022	Swept Path Update	RR	SGL



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Introduction

1.1 **Background**

Cardno now Stantec has been commissioned by Hesperia Pty Ltd ('the Client') to conduct a Transport Impact Assessment for a Warehouse and Incidental Offices development at Lots 16, 18 and 102 Coldwell Road, Wattle Grove ('Site') within the Maddington-Kenwick Strategic Employment Area (MKSEA), specifically within Precinct 3A (sub-area of Precinct 3), under the jurisdiction of the City of Kalamunda.

This report aims to assess the impact of the development upon the adjacent road network. The report will also discuss access, public transport, pedestrian and cycle networks, circulation and car parking requirements.

This report has been prepared in accordance with the Western Australian Planning Commission (WAPC) Transport Impact Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016) and the checklist is included in Appendix A.

1.2 **Site Location**

The Site is located at Lots 16, 18 and 102 Coldwell Road, Wattle Grove. Figure 1-1 shows an aerial image of the Site.

The Site is currently vacant and is predominately surrounded by residential and industrial development, within an approved industrial estate.

SITE

Aerial Image of Site

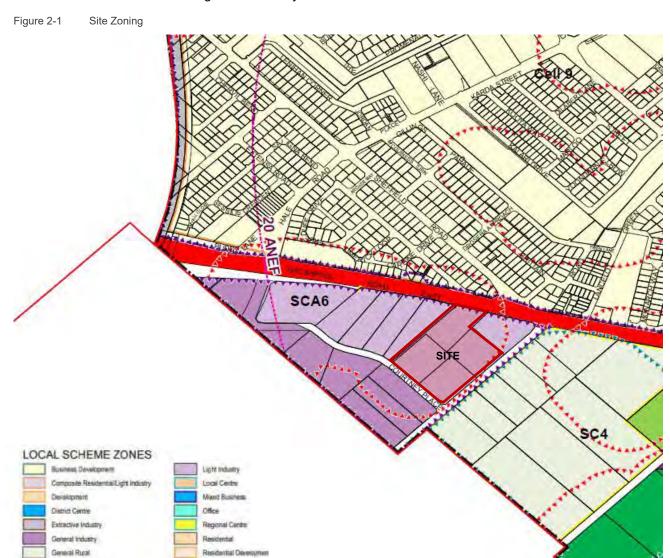
Source: MetroMap (2022)



2 **Existing Situation**

2.1 **Existing Land Uses**

Pursuant to the City of Kalamunda Local Planning Scheme No. 3 (LP23), the Site is zoned 'Light Industry', as shown in Figure 2-1. The Site is surrounded by light industry land uses to the north and east, general rural land uses to the south and general industry land uses to the west.



Special Use



2.2 **Existing Road Network**

Road Classifications are defined in the Main Roads Functional Hierarchy as follows:

- > Primary Distributors (light blue): Form the regional and inter-regional grid of MRWA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes, and all are National or State roads. They are managed by Main Roads.
- Regional Distributors (red): Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government.
- > District Distributor A (green): These carry traffic between industrial, commercial and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property. They are managed by Local Government.
- > District Distributor B (dark blue): Perform a similar function to District Distributor A but with reduced capacity due to flow restrictions from access to and roadside parking alongside the adjoining property. These are often older roads with traffic demand in excess of what was originally intended. District Distributor A and B roads run between land-use cells and not through them, forming a grid that would ideally be around 1.5 kilometres apart. They are managed by Local Government.
- Local Distributors (orange): Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local government.
- Access Roads (grey): Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by Local government.

The Site is bounded by Courtney Place to the west and Coldwell Road to the south. The surrounding road network is further described in Table 2-1 and Figure 2-3 shows the hierarchy as per the Main Roads WA Road Information Mapping System.

Table 2-1 Road Network Classification

Road Name	Road Hierarchy	Jurisdiction	No of Lanes	No of Footpaths	Approximate Width (m)	Posted Speed Limit (km/h)
Courtney Place	Access Road	Local Government	2	0	6m	50 km/h
Coldwell Road	Distributor B	Local Government	2	1	10m	60 km/h
Logistics Boulevard	Access Road	Local Government	2	1	10m	50 km/h
Welshpool Road East	Primary Distributor	Main Roads WA	4	2	24m (With 9m median strip)	70 km/h

Figure 2-3 Road Hierarchy



Source: Main Roads information Mapping (2022)

2.3 **Existing Traffic Volumes**

Existing traffic volumes were sourced from Main Road WA Traffic Map and are summarised in Table 2-2.

Table 2-2 Traffic Volumes

Road	Date	Existing Traffic Volumes		es
		Weekday AM Peak Hour	Weekday PM Peak Hour	Daily (HV%)
Welshpool Road East East of Roe Highway	2020/21	3,237	3,143	33,637 (12%)
Welshpool Road East West of Tonkin Highway	2021/2022	1,772	1,799	20,465 (11.2%)
Logistics Boulevard South of Courtney Place	2019/20	313	502	3,395 (25.9%)

Source: Main Roads Traffic Map



Restricted Access Vehicles (RAV) Network 2.4

The existing RAV network is shown in Figure 2-5. Coldwell Road can accommodate up to RAV 3, while the western portion of Courtney Place can currently accommodate up to RAV 7. It is expected that in the future, both Courtney Place and Coldwell Road to be included in the RAV 7 network.

Figure 2-5 Existing RAV Network





2.5 **Existing Public Transport Networks**

The Site is not currently directly served by any existing public transport services. The closest public transport routes are bus routes 282 and 283 that run along Welshpool Road. The local bus routes and their service frequency near the Site are shown in Table 2-3.

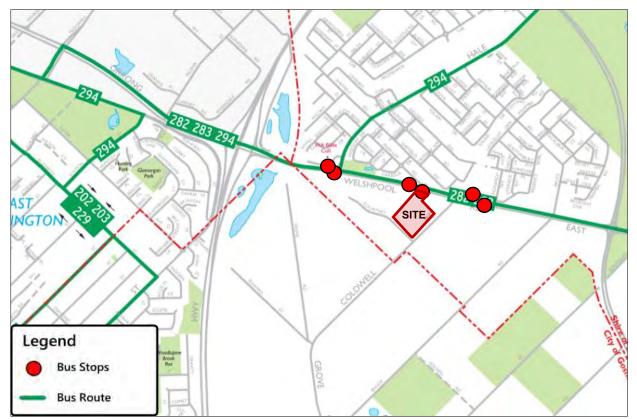
Table 2-3 **Bus Routes**

Route No. Route Description		Service Frequency (at the nearest bus stop)		
		Weekdays	Saturday	
282/283	Elizabeth Quay Bus Station – Kalamunda	Every 15 – 60 minutes	Every 60 minutes	
	Bus Station	(between 7:33am and 8:14pm)	(between 8:08am and 7:11pm)	
294	Carousel Shopping Centre – Midland Station	Every 20 – 60 minutes	Every 120 minutes	
		(between 5:51am and 7:27pm)	(between 8:38am and 6:11pm)	

Both bus routes run through Welshpool Road East located north of the Site and bus stops are within 750m 'as the crow flies' radius of the Site near Hale Road and Welshpool Road intersection. A signalised crossing on Welshpool Road East and 2.5m wide shared paths provide pedestrian access to the bus stops.

Refer to Figure 2-7 for the bus routes within proximity to the Site.

Figure 2-7 **Existing Bus Routes**



Source: Public Transport Authority (July 2022)



2.6 **Existing Pedestrian / Cycle Networks**

Figure 2-8 illustrates the pedestrian and bicycle network in the wider area surrounding MKSEA Precinct 3 (note that the road layout has been heavily modified within the MKSEA area since this map was produced). Recent improvements (not shown on the map) include:

- Upgraded and extended shared path from Roe Highway to Hale Road, along the northern side of Welshpool Road East;
- Shared path along the southern side of Welshpool Road East from Coldwell Road to Logistics Boulevard;
- Shared path along the western side of Logistics Boulevard and northern side of Courtney Place, within the Roe Highway Logistics Park.

Footpath is provided along Coldwell Road between Welshpool Road East and Courtney Place. No footpath is available on Courtney Place, therefore the only existing pedestrian and cycling access to the Site is only available via the footpath on Coldwell Road.

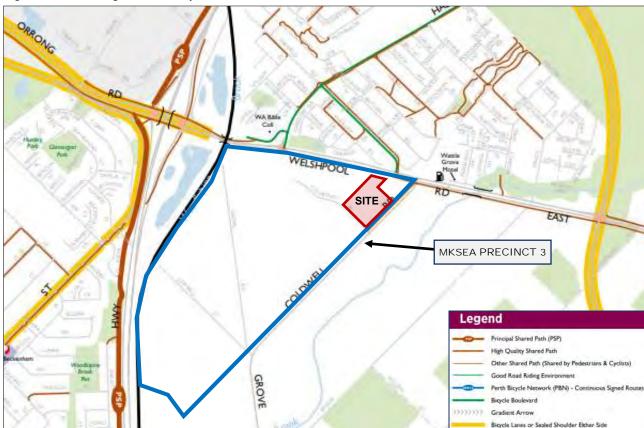


Figure 2-8 Existing Pedestrian / Cycle Networks

Source: Department of Transport (2016)



2.7 **Crash History**

A crash assessment for the surrounding road network of the Site has been conducted using the Main Roads WA Reporting Centre Information summarised in Table 2-4, Table 2-5 and Table 2-6. The assessment covers all the recorded accidents for the 5-year period between 1 January 2017 to 31 December 2021. Figure 2-10 shows the crash locations and their intensity along Coldwell Road and Welshpool Road East.

Table 2-4 **Total Crashes**

TOTAL CRASHES									
Type of Crash (RUM Code)	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes			
Hit Object	-	-	-	1	-	1			
Sideswipe Same Direction	-	-	-	2	-	2			
Right Angle	-	-	1	2	1	4			
Rear End	-	-	-	1	2	3			
Right Turn Thru	-	2	-	-	-	2			
Total	-	2	1	6	3	12			

Table 2-5 Intersection Crashes

Tubic 2 0 Intersection Ordenes									
INTERSECTION CRASHES Welshpool Road East - Coldwell Rd									
Type of Crash (RUM Code) Fatal Hospital Medical Major Property Damage Damage To									
Right Angle	-	-	1	2	1	4			
Rear End	-	-	-	-	2	2			
Right Turn Thru	-	2	-	-	-	2			
Total	-	2	1	2	3	8			

Table 2-6 Midblock Crashes

MIDBLOCK CRASHES									
Road Name	Fatal	Hospital	Medical	Major Property Damage	Minor Property Damage	Total Crashes			
Coldwell Rd									
Hit Object	-	-	-	1	-	1			
	Welshpool Road East								
Sideswipe Same Direction 2 - 2									
Rear End	-	-	-	1	-	1			



Figure 2-10 Crash Locations



A summary of the crash data is as follows:

- 12 crashes were recorded in total;
- No fatal crashes were recorded;
- 8 crashes occurred at the intersection of Welshpool Road East and Coldwell Road. Right angle crashes are the most common type (4 out of 8 crashes). 3 crashes resulted in property damage and 1 crash resulted in medical attention;
- 2 sideswipe crashes occurred on Welshpool Road East, just west of Coldwell Road. 1 crash occurred in the westbound direction and the other in the eastbound directions. Both crashes appear to be related to overtaking manoeuvres.
- 1 hit object crash occurred on Coldwell Road. The crash data indicated that the driver left the carriageway to avoid an animal and hit a tree.

3 Proposed Development

3.1 Proposed Development

The proposed development consists of site-specific components:

- > 2 warehouse tenancies (12,530m² and 8,800m²);
- > 3 incidental offices (570m² total);
- > 10 bicycle parking spaces; and
- > 98 car parking bays.

Figure 3-1 shows the floor plan of the proposed development. Detailed development plans are provided in **Appendix B**.

Figure 3-1 Floor Plan



Source: Hesperia (2022)

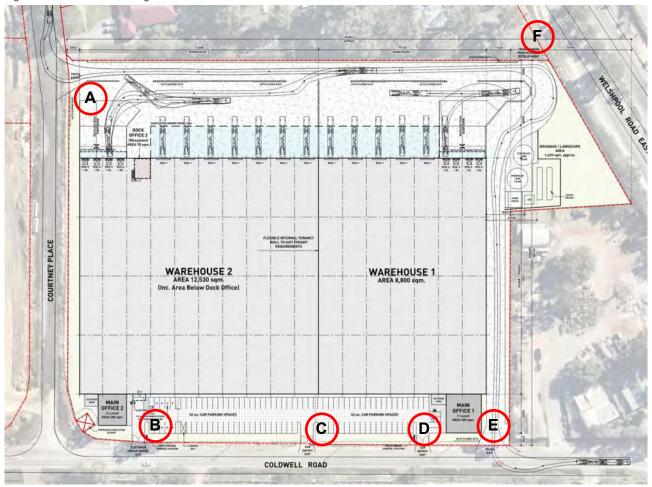


3.2 **Access Arrangements**

The Site access points are shown in Figure 3-2. Heavy vehicles will enter via Courtney Place (Access A) and exit the Site via Colwell Road (Access D). Cars will enter and exit the site via Access B and Access B along Courtney Place.

- Access A: Heavy vehicle entry;
- Access B: Light vehicle entry and exit;
- Access C: Light vehicle entry and exit;
- Access D: Light vehicle entry and exit; and
- > Access E: Heavy vehicle exit.
- Access F: Truck egress from adjacent lot (Lot 12 Courtney Place). This allows trucks from adjacent lots to exit directly to Coldwell Road. Lot 12 Courtney Place is currently in the development application stage and both Lot 12 and this proposal are cognisant of one another.

Figure 3-2 Access Arrangements for The Site



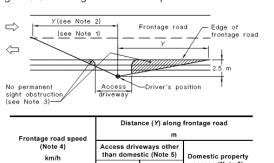
Source: Hesperia (2022)



3.3 Sight Distance Assessment

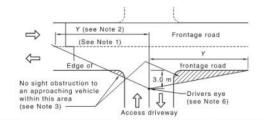
Sight line assessment has been undertaken at the access to ensure adequate sight line is available. The sight distance assessment will be undertaken against AS 2890.1 for passenger vehicles and AS 2890.2 for trucks. A design frontage road speed of 60km/h and 5 seconds gap will be assumed, which corresponds to 83m sight distance requirement. All egress points of the Site (Access B, C, D, E, F) will be assessed. In the case of Access F (egress from Lot 12 Courtney Place) a design speed of 40km/h is selected.

Figure 3-3 Sight Distance Requirement at Access Driveway



	Distance (Y) along frontage road						
Frontage road speed	m						
(Note 4)		eways other stic (Note 5)	Domestic property				
	Desirable Minimum 5 s gap SSD		access (Note 6)				
40	55	35	30				
50	69	45	40				
60	83	65	55				
70	97	85	70				
80	111	105	95				
90	125	130	s and				
100	139	160	Use values from 2 nd and 3 rd columns				
110	153	190	una o columna				

AS 2890.1



rontage road speed (see Note 4) km/h 40 50 60 70 80 90	Distance (Y) along frontage road (see Note 5)				
km/n	5 s gap	8 s gap			
40	55	89			
50	69	111			
60	83	133			
70	97	156			
80	111	178			
90	125	200			
100	139	222			
110	153	244			

AS 2890.2

Figure 3-4 and Figure 3-6 below shows the results of the sight distance assessment at the Site egress points. Access B to E all have compliant sight distance with no visual obstruction. At Access F, fences and gates should be visually permeable to achieve satisfactory sight distance.

Larger format of the sight distance diagram can be found in **Appendix D**.

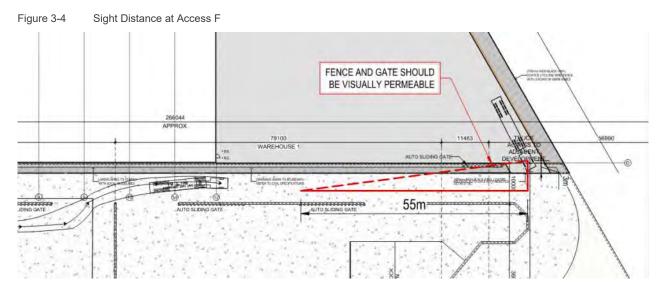


Figure 3-5 Sight Distance at Access E

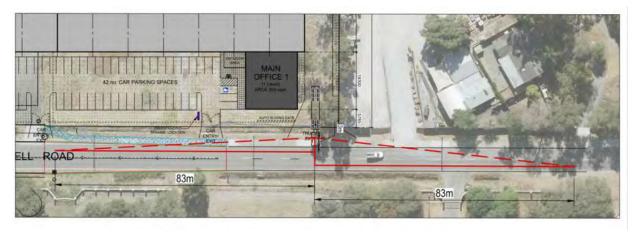


Figure 3-6 Car Park Access Sight Distance









3.4 Swept Path Analysis

Swept path analysis has been undertaken for the site using a 19m semi-trailer as the design vehicle. Trucks are expected to enter via Access A on Courtney Place and exit by turning left out at Access E. Figure 3-7 to Figure 3-9 show 19m semi-trailer entering, circulating, and exiting the Site. The swept path shows that the site can accommodate 19m semi-trailers. The entry driveway (Access A) is able to accommodate the design vehicle, however the exit driveway (Access E) would require further adjustments at the detailed design stage to ensure that the provided apron sufficiently accommodates the left turn exiting movement.

Figure 3-10 shows a semi trailer from the adjacent lot (Lot 12 Courtney Place) egressing (Access F) into the Site in order to exit to Coldwell Road. This adjacent lot is still currently in the development application stage and is cognisant of the egress into this Site.

Larger format of the swept path analysis can be found in **Appendix C**.

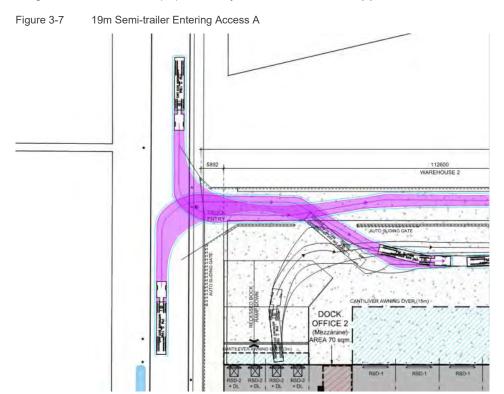


Figure 3-8 19m Semi-trailer Circulating the Site

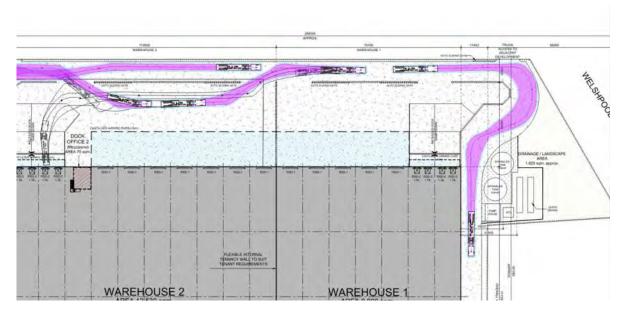


Figure 3-9 19m Semi-trailer Exiting Access E

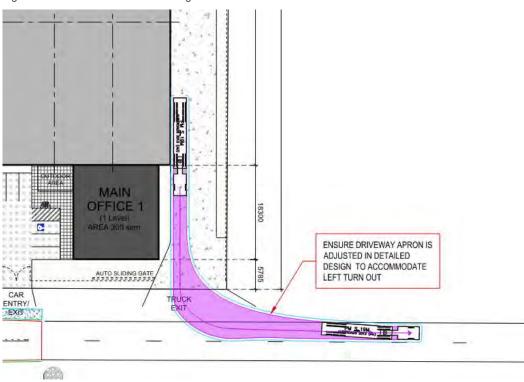
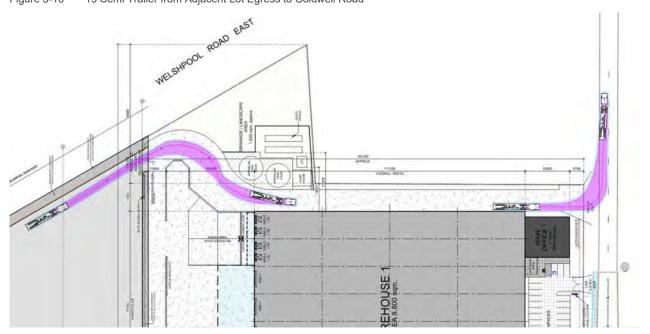
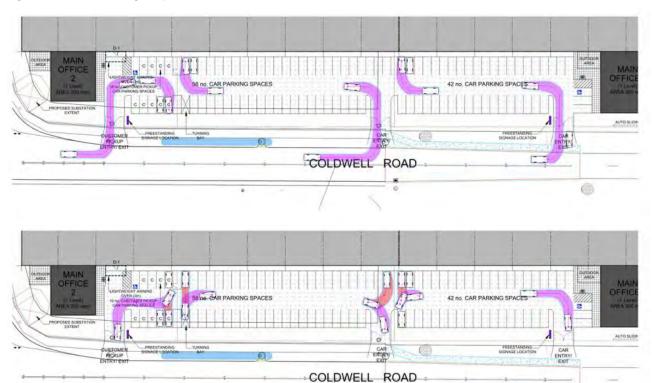


Figure 3-10 19 Semi Trailer from Adjacent Lot Egress to Coldwell Road



Swept path analysis has also been undertaken for the car park as shown below in Figure 3-11, with full size figures available in Appendix C. The swept path analysis shows that the car park layout can accommodate parking manoeuvre and circulation for passenger cars.

Figure 3-11 Car Parking Swept Paths





3.5 Car Parking Provision

The statutory parking requirements, in accordance with the City of Kalamunda Local Planning Scheme No. 3 have been considered in the context of the proposed development and are summarised below in Table 3-1. For more information regarding car parking, please refer to the Development Application.

Table 3-1 Car Parking Requirements

Proposed Land Use	Parking Requirements	Yield	Parking Required	Parking Provided	Compliant
Warehouse	3 bays for up to the first 200m² of GFA, and thereafter 1 bay for every 100m² of NLA or part thereof	21,830 m² Warehouse GFA	219 bays	 Warehouse 1: 56 car bays Warehouse 2: 42 car bays 10 Customer parking bays Total: 98 bays 	No
Proposed Shortfall				121 bays	

As outlined above in **Table 3-1**, 98 car parking bays are proposed on Site. Whilst this identifies a shortfall of 121 bays, as per the City of Kalamunda Local Planning Scheme No. 3 car parking requirements, this is considered appropriate given the size of the warehouses and is consistent with other sites within MKSEA.

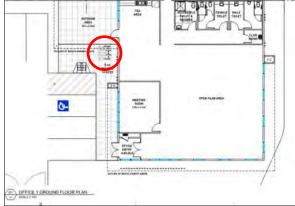
Whilst occupying a large area, the nature of the warehouse business does not generate a large parking demand. The number of employees expected to attend the Site is 25 employees for Warehouse 1 and 23 employees for Warehouse 2. Additionally, 4 visitors per day is expected to attend each warehouse. Therefore, the combined parking demand for both warehouses per day is 56 bays, which can be catered by the proposed parking supply. It is expected that there will be no resultant lowering of safety, convenience, and amenity standards as a result of the proposed parking variation and the variation is considered acceptable in this instance.

3.6 **Bicycle Parking Provision**

The City of Kalamunda Local Planning Scheme No. 3 does not have any requirements for bicycle parking facilities for the proposed land use at the Site. Notwithstanding, 5 bicycle parking spaces are provided near the entry of each of the main offices, for a total of 10 bicycle spaces for the entire Site.

Figure 3-13 Bicycle Parking Location





4 Changes to Surrounding Transport Network

4.1 Road Network

As part of development contained within the MKSEA Precinct 3 (i.e. Precinct 3A and 3B) Structure Plan, the following changes are proposed:

- > Widening and upgraded of Coldwell Road. A section between Logistics Boulevard and Freight Road is complete;
- > Relocation and upgrade of the Welshpool Road East/Coldwell Road intersection including the realignment of the Coldwell Road approach. The intersection upgrade is envisaged to be completed near the full build-out of Precinct 3A and 3B; and
- Courtney Place will be realigned and upgraded to cater for the subdivision. The road reserve of the realignment is proposed to be maintained at 18m. While this is narrower than the 20m reserve width typical for an industrial area, the 18m width will still be sufficient for 10m road pavement and 4m of verge on both sides. At the intersection with Coldwell Road, corner truncations will be provided to accommodate heavy vehicle swept paths. Turning movements for larger vehicles to/from individual lots will be accommodated by widening crossovers and/or within the individual lots if required.

4.2 Public Transport Network

According to the Precinct 3A Structure Plan Transport Assessment Report by Cardno now Stantec, the Public Transport Authority (PTA) advised that no changes to the existing public transport services along Welshpool Road are likely to occur within the foreseeable future.

Furthermore, PTA suggests that due to the relatively low employment density associated with industrial land use, along with the lack of connectivity between the eastern and western precincts within MKSEA, it is unlikely that PTA would justify the provision of a public transport service within MKSEA.

4.3 Pedestrian / Cycle Network

Cardno now Stantec contacted both the City of Kalamunda and the City of Gosnells and are not aware of any major changes to pedestrian or cycling networks in the vicinity of the Site in the short term. Information from the Department of Transport indicates that in the long term, a cycling facility along the freight rail line may be provided and may connect to the west of the Site.

Footpaths and/or shared paths are proposed to be provided on each road within MKSEA Precincts 3A and 3B, as development proceeds. A path is also expected to be constructed on the north side of Courtney Place as part the road upgrades.

5 Integration with Surrounding Area

5.1 Surrounding Attractors and Generators

The Site is located within a developing industrial area, opposite a large residential suburb and adjacent to a major commuter route. Within the Roe Highway Logistics Park, amenities for workers are commuters are provided through the BP Service Station located at the corner of Logistics Boulevard and Courtney Place.

5.2 Proposed Changes to Surrounding Land Uses

The Site is currently located in a developing area transitioning from rural residential to an industrial development and will be subdivided into larger industrial land use lots, consistent with the MKSEA Structure Plan.

Cardno Cardno

6



6.1 Assessment Overview

SIDRA analysis has been undertaken for the following intersections in the vicinity of the Site:

- > Welshpool Road East / Logistics Boulevard / Hale Road
- > Welshpool Road East / Coldwell Road
- > Coldwell Road / Courtney Place
- > Logistics Boulevard / Courtney Place

The locations of the assessed intersections are shown in Figure 6-1.

Figure 6-1 Assessed intersections



Source: Metromap (2021)

6.2 Assessment Years and Time Period

The following scenarios have been analysed for this assessment:

- > Scenario 1 2020: base scenario
- > **Scenario 2** 2023: opening year of the proposed development
- > **Scenario 3** 2033 ultimate scenario: assumed completion of MKSE Precinct 3A, 3B, and 3C includes the proposed development

Peak hours used in the analysis are based on the surrounding road network peak which is detailed below:

- > AM Peak: 7:30 8:30
- > PM Peak: 16:30 17:30

The peak hours were identified from traffic count data of the above subject intersections undertaken on 10 December 2020.



6.3 **Key Assumptions**

The assumptions used for the analysis are enumerated below:

- Existing year 2020 background traffic data was sourced from traffic count survey undertaken in December 2020.
- A growth rate of 2% per year has been applied in projecting 2020 background traffic to 2023 opening year traffic
- > For the future year 2033 background traffic, through movements on Welshpool Road East and Hale Road were increased by 2% per annum from 2020. Turning movements into MKSEA area were obtained by adding the traffic generated for the full build-out of Precinct 3A and 3B to the existing traffic.
- > Heavy vehicle percentages are based on the December 2020 traffic counts.

Traffic Generation 6.4

The trip generation of the proposed development and the surrounding industrial precincts are discussed below.

6.4.1 Scenario 2 (2023 Opening year) Input: Development Volumes

The trip generation rate used for the proposed development and the surrounding industrial areas has been adopted from a previous AIMSUN modelling of MKSEA Precinct 3A and 3B which is based on ROM data (July 2017 Job#40342) provided by MRWA. The trip rates for the proposed development are shown in Table 6-1. The estimated trips generated by the Site are shown in Table 6-2.

Table 6-1 Trip Rates

Land Use	AM Peak	PM Peak	Daily	AM Distribution		P Distril	M oution	Da	nily
				IN	OUT	IN	OUT	IN	OUT
Industrial	6.4 per Ha	5.9 per Ha	80.1 per Ha	68%	32%	32%	68%	50%	50%

Table 6-2 **Estimated Development Trip Generation**

Land Use	Yield	AM Peak		PM	Peak	Daily	
Lanu USE	rieiu	IN	OUT	IN	OUT	IN	OUT
Industrial	4.008 Ha	17	8	8	16	161	161
	Total	25		24		322	

The potential number of trips generated by the development is 25 trips and 24 trips in the AM peak and PM peak, respectively, with a daily total of 322 trips.

In addition, there is also a small number of truck movement exiting from the adjacent Lot 12 Courtney Place, which is estimated to be up to 5 trucks per day.



6.4.2 Scenario 3 (Ultimate) Input: Precinct 3A, 3B, and 3C Volumes

The trips generated by the surrounding industrial precincts (See Figure 6-3) have also been considered in the analysis of the ultimate (2033) scenario. Using the same trip rates shown in **Table 6-1**, the trips generated by the surrounding industrial precincts were calculated and are detailed in Table 6-3.

Figure 6-3 Precinct 3A, 3B, and 3C



Table 6-3 Estimated Trip Generation - Precinct 3A, 3B, and 3C

Precinct	Yield	AM Peak		PM	Peak	Daily	
		IN	OUT	IN	OUT	IN	OUT
3A	42.267 Ha	184	87	80	171	1693	1693
3B	41.276 Ha	180	85	78	167	1654	1654
3C (includes proposed development traffic)	45.259 Ha	197	93	85	183	1814	1814
	Total	827		765		10,322	

The potential number of trips generated by precincts 3A, 3B, and 3C is 827 trips and 765 trips in the AM peak and PM peak, respectively with a daily total of 10,322 trips. Note that these trips are assumed to be distributed among Logistics Boulevard, Coldwell Road, and Brook Road.

LEGEND

6.5 Development Traffic Distribution

6.5.1 Scenario 2 (2023 Opening year) Input: Development Trip Distribution

The estimated trip distribution diagrams for the proposed development are shown in **Figure 6-4** and **Figure 6-5**. The distribution is based on a combination of high-level trip distribution for the subdivision and consideration of existing intersection turning movements. The trip distributions shown are applied to both AM and PM peak periods.



Figure 6-4 Trip Distribution of development traffic - Inbound

Figure 6-5 Trip Distribution of development traffic – Outbound



6.5.2 Scenario 3 (Ultimate) Input: Precinct 3A, 3B, and 3C Trip Distribution

The distribution of trips originating from each of the industrial precincts among the three access roads are shown in Figure 6-6.



Figure 6-6 Trip Distribution of Precinct 3A, 3B, and 3C traffic

6.6 **Traffic Volumes**

The trips generated by the proposed development and the surrounding industrial precincts were calculated using the base scenario traffic data and the above trip generation and distributions. The calculated network traffic volumes for each of the identified scenarios are presented in Figure 6-7, Figure 6-8, and Figure 6-9.

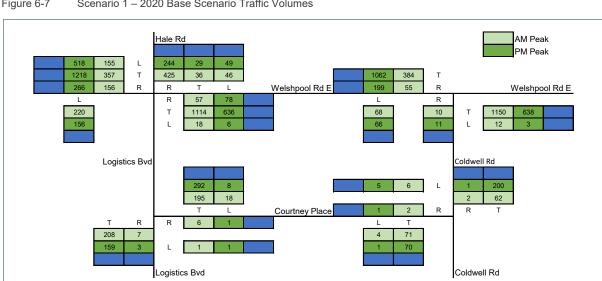


Figure 6-7 Scenario 1 – 2020 Base Scenario Traffic Volumes

Scenario 2 – 2023 Future Traffic with Development Traffic Volumes Figure 6-8

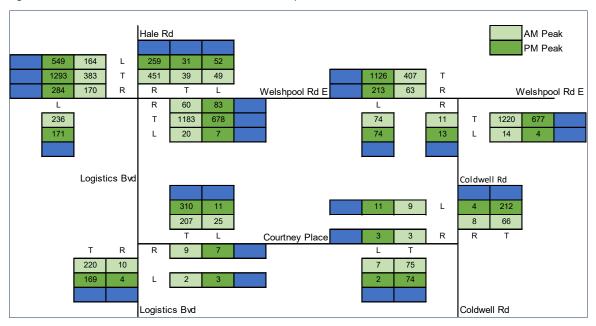


Figure 6-9 Scenario 3 – 2033 Future Traffic with Precincts 3A, 3B, and 3C Traffic



The above volumes were used as input for the SIDRA analysis of the intersections as discussed in the succeeding sections.



6.7 **Intersection Performance**

SIDRA analysis was undertaken at surrounding intersections to estimate the impact of the development generated traffic on the surrounding transport network. SIDRA results for each approach are presented below in the form of Degree of Saturation (DOS), Average Delay, Level of Service (LOS) and 95th Percentile Queue. These characteristics are defined as follows:

- > Degree of Saturation (DOS): is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The theoretical intersection capacity is exceeded for an un-signalized intersection where DOS > 0.80:
- > 95% Queue: is the statistical estimate of the queue length up to or below which 95% of all observed queues would be expected;
- > Average Delay: is the average of all travel time delays for vehicles through the intersection. An unsignalised intersection can be considered to be operated at capacity where the average delay exceeds 40 seconds for any movement; and
- > Level of Service (LOS): is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. The different levels of service can generally be described as shown in Table 6-4.

Level of Service (LOS) Performance Criteria Table 6-4

LOS	Description	Signalised Intersection	Unsignalised Intersection
А	Free-flow operations (best condition)	≤10 sec	≤10 sec
В	Reasonable free-flow operations	10-20 sec	10-15 sec
С	At or near free-flow operations	20-35 sec	15-25 sec
D	Decreasing free-flow levels	35-55 sec	5-35 sec
E	Operations at capacity	55-80 sec	35-50 sec
F	A breakdown in vehicular flow (worst condition)	≥80 sec	≥50 sec



6.8 **SIDRA Analysis Results**

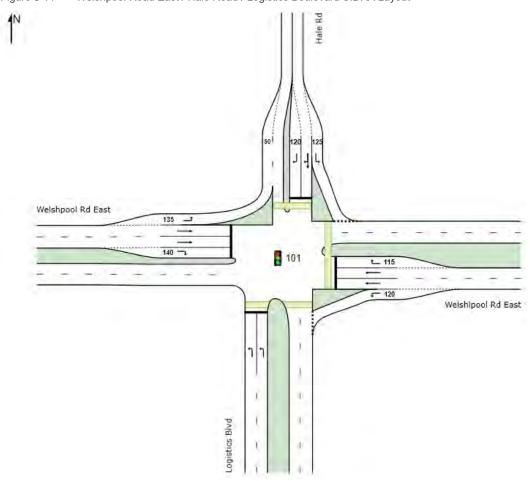
The results of SIDRA analysis for each of the four identified intersections are discussed in the following subsections.

6.8.1 Welshpool Road East / Logistics Boulevard / Hale Road

6.8.1.1 Existing Layout

The SIDRA analysis results for the existing layout of Welshpool Road East / Hale Road / Logistics Boulevard intersection are summarised in Table 6-5 to Table 6-7. Figure 6-11 shows the SIDRA layout representation of the intersection.

Figure 6-11 Welshpool Road East / Hale Road / Logistics Boulevard SIDRA Layout



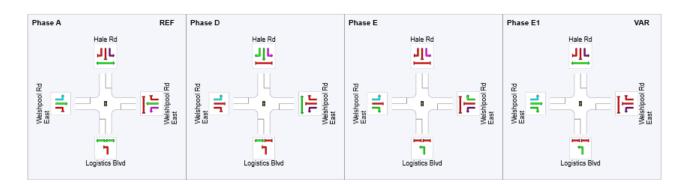




Table 6-5 Scenario 1 Results - Welshpool Road East / Hale Road / Logistics Boulevard

Intersection Approach	Intersection Approach						Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)	
South: Logistics Blvd	L	0.449	63.3	E	78.3	0.192	26.2	С	23.0	
East: Welshpool Rd East	L	0.020	10.3	В	3.0	0.007	10.3	В	0.6	
	Т	0.703	32.3	С	269.6	0.624	25.8	С	86.3	
	R	0.242	63.6	E	38.9	0.470	44.2	D	22.7	
North: Hale Rd	L	0.040	7.0	Α	3.2	0.069	11.6	В	5.6	
	Т	0.688	63.1	E	123.0	0.652	38.5	D	41.1	
	R	0.688	67.4	E	123.3	0.652	42.9	D	41.1	
West: Welshpool Rd East	L	0.091	6.9	Α	0.0	0.296	6.9	Α	0.0	
	Т	0.238	24.2	С	71.4	0.678	15.5	В	140.1	
	R	0.698	70.7	E	129.4	0.637	32.4	С	87.4	
All vehicles		0.703	40.9	D	269.6	0.678	21.0	С	140.1	

Scenario 2 Results – Welshpool Road East / Hale Road / Logistics Boulevard Table 6-6

Intersection Approach			Weekday	AM pea	k		Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)	
South: Logistics Blvd	L	0.465	62.6	Е	83.8	0.21	26.4	С	25.4	
East: Welshpool Rd East	L	0.023	10.8	В	3.5	0.008	10.6	В	0.7	
	Т	0.747	33.3	С	294.3	0.666	26.4	С	94	
	R	0.255	63.8	Е	41	0.500	44.4	D	24.3	
North: Hale Rd	L	0.043	7	Α	3.4	0.075	12.5	В	6.5	
	Т	0.758	66.6	Е	136.4	0.693	39.2	D	44.3	
	R	0.758	71	Е	136.6	0.693	43.6	D	44.3	
West: Welshpool Rd East	L	0.097	6.9	Α	0	0.313	7	Α	0	
	Т	0.252	23.8	С	76.4	0.720	16	В	153.7	
	R	0.736	71.7	Е	143.6	0.68	33.5	С	96.7	
All vehicles		0.758	42	D	294.3	0.72	21.5	С	153.7	



Table 6-7 Scenario 3 Results - Welshpool Road East / Hale Road / Logistics Boulevard

Intersection Approach			Weekday	AM peal	ζ		Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)	
South: Logistics Blvd	L	0.547	62.2	Е	106	0.41	29.6	С	50.2	
East: Welshpool Rd East	L	0.041	14.2	В	8	0.009	12	В	0.9	
	T	0.974	77.3	Е	589.1	0.853	33.6	С	167.2	
	R	0.389	71	Е	52.8	0.591	45.1	D	29.2	
North: Hale Rd	L	0.061	8.3	Α	6.1	0.098	17.4	В	10.3	
	T	0.961	97	F	211.7	0.922	52.4	D	63	
	R	0.961	101.3	F	211.5	0.922	56.8	E	63	
West: Welshpool Rd East	L	0.115	6.9	Α	0	0.373	7	Α	0	
	Т	0.386	21.7	С	129.1	0.878	27.5	С	268.7	
	R	0.973	110.7	F	273.7	0.855	44.9	D	138.6	
All vehicles		0.974	67.2	E	589.1	0.922	29.7	С	268.7	

In Scenario 1, it can be observed that some movements in the AM Peak are already experiencing high delays, particularly the right turn movement from Welshpool Road East to Logistics Boulevard. These delays are attributed to the very long cycle times used in peak periods and the relatively small proportion of green time allocated to these movements. The overall intersection performance is still considered acceptable with Degree of Saturation of 0.703.

Scenario 2 results show that the additional trips generated by the proposed development will have a negligible effect on the existing performance of the intersection. Therefore, no upgrades to the intersection are required to accommodate the proposed development.

Results for Scenario 3 shows that the intersection performance would perform poorly in the future AM Peak, particularly the east leg (Welshpool Road East) and north leg (Hale Road). This is predominantly caused by the increase in background traffic, specifically:

- General background traffic growth on Welshpool Road East; and
- Traffic generated by the full build-out of Precinct 3A, 3B, and 3C.

The PM peak results for all scenarios show that the intersection will experience some increase in delay and queue lengths. While the degree of saturation indicates that the intersection is close to capacity, the overall level of service still considered satisfactory at LOS C in the ultimate scenario.

Section 6.8.1.2 provides an additional analysis of potential mitigation measures which can be considered to address the performance issues in the AM Peak of Scenario 3.



6.8.1.2 Potential Mitigation Measure

For this intersection, potential changes to the intersection layout to improve the AM Peak performance of the intersection are listed below:

- > 100m long additional right turn lane on Hale Road approach
- > 150m long additional through lane on Welshpool Road East westbound approach
- > 150m long additional westbound departure lane on Welshpool Road East.

These modifications are generally consistent with the previous modelling at Structure Plan and Traffic Signals Approval stages that indicate the need for increased capacity beyond the full build-out of MKSEA to accommodate background traffic growth. One of the main drivers for the additional intersection capacity is Main Roads' previous plans to disconnect Tonkin Highway and Hale Road, with the resultant diverting of Wattle Grove traffic through this intersection to access the wider road network. In May 2020, Main Roads announced that north-facing ramps would be provided at Tonkin Highway/Hale Road. This will result in a significant reduction in projected traffic growth on Hale Road which has not been accounted for in this analysis. Therefore, it is possible that the mitigation measure may not be required, subject to Main Roads providing revised traffic volume forecasts.

Figure 6-12 below show the SIDRA layout of the potential upgrade to the intersection. Table 6-8 show the SIDRA analysis of the mitigated intersection layout in the AM Peak, compared with the results from Scenario 3 results.

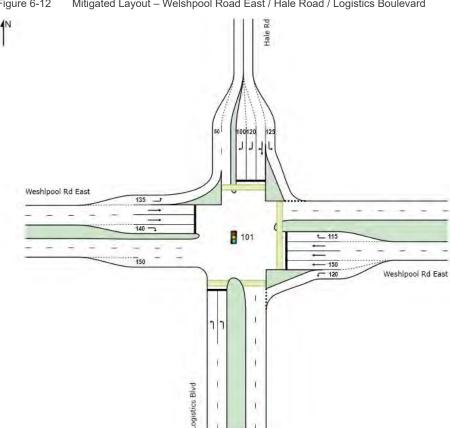


Figure 6-12 Mitigated Layout - Welshpool Road East / Hale Road / Logistics Boulevard



Table 6-8 Mitigation Scenario 3 Results - Welshpool Road East / Hale Road / Logistics Boulevard

		Welshpool Road East / Hale Road / Logistics Boulevard										
Intersection		Miti	gated Scena AM F		Dev)	Scenario 3 (2033+Dev) AM Peak						
Approach		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)			
South: Logistics Blvd	L	0.505	51.5	D	67.6	0.547	62.2	Е	106			
Fact: Walshpeel	L	0.044	12.3	В	4.9	0.041	14.2	В	8			
East: Welshpool Rd East	Т	0.848	43.8	D	181.2	0.974	77.3	E	589.1			
	R	0.428	47.9	D	30.8	0.389	71	E	52.8			
	L	0.063	8.4	Α	4.7	0.061	8.3	Α	6.1			
North: Hale Rd	Т	0.685	43.2	D	61.5	0.961	97	F	211.7			
	R	0.808	58	Е	77	0.961	101.3	F	211.5			
West: Welshaed	L	0.115	6.9	Α	0	0.115	6.9	Α	0			
West: Welshpool Rd East	Т	0.431	16.6	В	88.3	0.386	21.7	С	129.1			
	R	0.812	47.8	D	132.8	0.973	110.7	F	273.7			
All vehicles		0.848	39.3	D	181.2	0.974	67.2	E	589.1			

The results show that the AM peak performance of the intersection under the revised layout is better compared to the existing layout.

Specifically, the queue lengths on Hale Road and Welshpool Road East westbound approaches are reduced significantly. The right turn movement from Welshpool Road East into Logistics Boulevard would have its queue length within the existing turn pocket length and therefore does not impact through traffic.

Potential upgrades to the intersection should be further discussed with Main Roads to accommodate background traffic growth and the full build-out of Precinct 3A and 3B.



6.8.2 **Logistics Boulevard / Courtney Place**

The SIDRA layout of Logistics Boulevard / Courtney Place is shown in Figure 6-13 and the analysis results for intersection are presented in Table 6-9 to Table 6-11.

The results show that the intersection will operate satisfactorily in the 2023 opening year of the proposed development as well as in the ultimate scenario.

Figure 6-13 Logistics Boulevard / Courtney Place SIDRA Layout

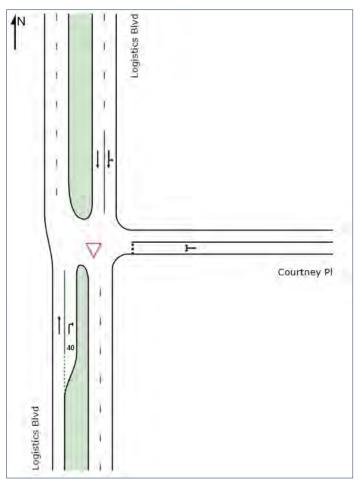


Table 6-9 Scenario 1 Results -Logistics Boulevard / Courtney Place

Intersection Approach			Weekday	AM peak		Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South:	Т	0.143	0.1	Α	0	0.101	0.1	Α	0
Logistics Blvd	R	0.009	6.7	Α	0.3	0.004	6.9	Α	0.1
East:	L	0.015	5	Α	0.5	0.003	5.1	Α	0.1
Courtney PI	R	0.015	10.6	В	0.5	0.003	8.8	Α	0.1
North: Logistics Blvd	L	0.076	4.9	Α	0	0.095	4.9	Α	0
	Т	0.076	0.1	Α	0	0.095	0.1	Α	0



Table 6-10 Scenario 2 Results - Logistics Boulevard / Courtney Place

Intersection Approach			Weekday		Weekday PM Peak					
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)	
South:	Т	0.151	0.1	Α	0	0.115	0.1	А	0	
Logistics Blvd	R	0.013	6.9	А	0.5	0.006	7.8	А	0.2	
East: Courtney	L	0.025	5.2	Α	0.8	0.021	5.4	Α	0.6	
Pl	R	0.025	11.3	В	0.8	0.021	11.5	В	0.6	
North: Logistics Blvd	L	0.081	4.8	Α	0	0.112	4.8	Α	0	
	Т	0.081	0.1	Α	0	0.112	0.1	Α	0	

Scenario 3 Results - Logistics Boulevard / Courtney Place Table 6-11

Intersection Approach			Weekday	AM peak		Weekday PM Peak				
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)	
South:	Т	0.186	0.1	Α	0	0.184	0.1	Α	0	
Logistics Blvd	R	0.032	8.6	Α	1.2	0.022	8.6	Α	0.8	
East: Courtney	L	0.1	5.5	Α	3	0.148	5.6	Α	4.4	
PI	R	0.1	17.2	С	3	0.148	16.8	С	4.4	
North: Logistics Blvd	L	0.129	4.8	Α	0	0.129	4.8	Α	0	
	Т	0.129	0.1	Α	0	0.129	0.1	Α	0	



6.8.3 Welshpool Road East / Coldwell Road

6.8.3.1 Existing Layout

The SIDRA layout of Welshpool Road East / Coldwell Road is shown in Figure 6-14. This intersection has been calibrated based on video footage of the traffic count. This was undertaken by adjusting the SIDRA model gap acceptance parameters to correspond with the observed average delays at the intersection.

The analysis results for intersection are presented in **Table 6-12** to **Table 6-13**. The results show that the intersection would operate satisfactorily in the 2023 opening year. No upgrade is required to accommodate the full development of the proposed development.

With precincts 3A and 3B completed in 2033, the intersection is anticipated to perform poorly, particularly the right turn in and out of Coldwell Road due to the increased traffic from the remainder of Precinct 3A and 3B. As such, an intersection upgrade will be required when the remainder of Precinct 3A and 3B are significantly completed. The SIDRA analysis of the proposed mitigation measure for this intersection is discussed in Section 6.8.3.2.

Figure 6-14 Welshpool Road East / Coldwell Road SIDRA Layout

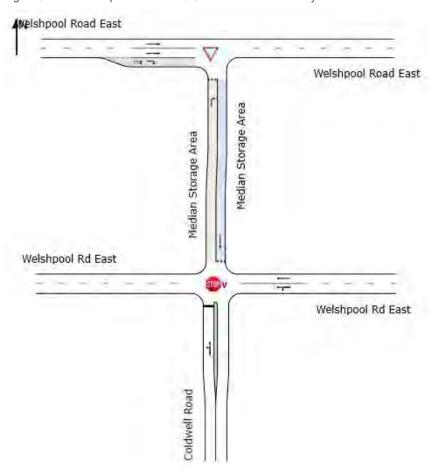




Table 6-12 Scenario 1 Results - Welshpool Road East / Coldwell Road

Intersection Approach			Weekday	AM peak		Weekday PM Peak				
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)	
South: Coldwell Road	L	0.149	13.4	В	4.7	0.084	9.6	Α	2.3	
	R	0.149	24.1	С	4.7	0.084	20.7	С	2.3	
East:	L	0.319	6.7	Α	0	0.183	7	Α	0	
Welshpool Rd East	Т	0.319	0.1	Α	0.01	0.183	0	Α	0	
West: Welshpool Road East	Т	0.115	0.1	Α	0	0.296	0.1	Α	0	
	R	0.177	17.4	С	5	0.278	10.8	В	8.9	

Table 6-13 Scenario 2 Results - Welshpool Road East / Coldwell Road

Intersection Approach			Weekday	AM peak		Weekday PM Peak				
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)	
South:	L	0.171	13.9	В	5.4	0.104	10.3	В	3.1	
Coldwell Road	R	0.171	24	С	5.4	0.104	24.2	С	3.1	
East:	L	0.339	6.7	Α	0	0.195	7	Α	0	
Welshpool Rd East	Т	0.339	0.1	Α	0.01	0.195	0	Α	0	
West:	Т	0.122	0.1	Α	0	0.314	0.1	А	0	
Welshpool Road East	R	0.229	19.7	С	6.7	0.313	11.4	В	10.5	

Table 6-14 Scenario 3 Results - Welshpool Road East / Coldwell Road

	700 TO Contains of Notice Post Notice Last, Contained Notice Notice Notice Last, Contained Notice No										
Intersection Approach			Weekday AN	l peak	Weekday PM Peak						
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)		
South: Coldwell Road	L	0.332	16.4	С	13.2	0.479	12.8	В	21.4		
	R	0.3	39.8	Е	7.1	0.479	44.8	E	21.4		
East:	L	0.424	6.8	Α	0	0.251	6.7	Α	0		
Welshpool Rd East	Т	0.424	0.1	Α	0.03	0.251	0.1	Α	0		
West: Welshpool Road East	Т	0.136	0.1	Α	0	0.39	0.1	Α	0		
	R	1.64	613.5	F	608.5	0.54	15.8	С	22.2		



6.8.3.2 Potential Mitigation Measure

As per the analysis results, the existing intersection layout will be able to cater for the proposed development traffic. However, additional traffic from the remainder of Precinct 3A and 3B and general background traffic growth will require a need to upgrade the intersection.

To cater for the ultimate scenario traffic, it is proposed that the intersection of Welshpool Road East and Coldwell Road be upgraded into a signalised intersection. Figure 6-15 below shows an indicative layout of the signalised layout.

Table 6-15 shows that the signalised layout performed satisfactorily and would be able to cater for the full build-out of Precinct 3A and 3B and background traffic growth.

Mitigated Layout - Welshpool Road East / Coldwell Road



Table 6-15 Mitigation Sc	able 6-15 Mitigation Scenario Results – Welshpool Road East / Coldwell Road											
				Welshpod	I Road Eas	t / Coldwel	I Road					
			Mitigation Scenario									
Intersection			AM Peak			PM Peak						
Approach		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)			
Cavida, Caldonall Dand	L	0.297	18.2	В	35.8	0.324	10.4	В	25			
South: Coldwell Road	R	0.389	52.7	D	16.3	0.440	35.4	D	18.2			
East: Welshpool Rd	L	0.081	10.3	В	8.7	0.037	10	В	2.6			
East	Т	0.877	31.7	С	291.3	0.759	22.8	С	101.8			
West: Welshpool Rd	Т	0.182	2.7	Α	23.4	0.587	5.9	Α	92.6			
East	R	0.833	51.8	D	110.7	0.769	34.2	С	71.3			
All Vehicles		0.877	27.1	С	291.3	0.769	14.8	В	101.8			



6.8.4 **Coldwell Road / Courtney Place**

The SIDRA layout of the Coldwell Road / Courtney Place intersection is shown in Figure 6-16 and the analysis results for intersection are presented in Table 6-16 to Table 6-18.

The results show that the intersection would operate satisfactorily in the opening year 2023 as well as in the 2033 ultimate scenario. No upgrade is required for this intersection.

Coldwell Road / Courtney Place SIDRA Layout Figure 6-16

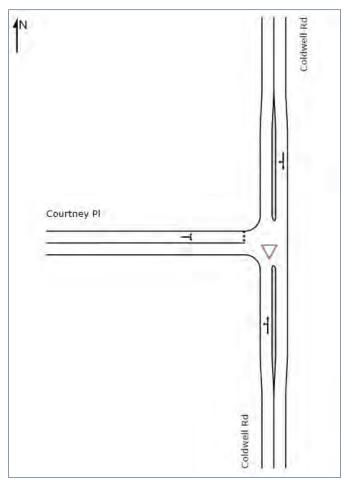


Table 6-16 Scenario 1 Results - Coldwell Road / Courtney Place

Table 6-16 Scenario i Results – Columbia Road / Countriey Flace										
Intersection Approach		Weekday AM peak					Weekday PM Peak			
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)	
South: Coldwell Rd	L	0.046	6.1	Α	0	0.038	5.5	Α	0	
	Т	0.046	0.0	Α	0	0.038	0.0	Α	0	
North: Coldwell	Т	0.039	0.0	Α	0.1	0.113	0.0	Α	0.1	
Rd	R	0.039	5.7	Α	0.1	0.113	5.7	Α	0.1	
West: Courtney PI	L	0.009	5.3	Α	0.3	0.004	4.8	Α	0.15	
	R	0.009	7.4	Α	0.3	0.004	5.6	Α	0.15	



Table 6-17 Scenario 2 Results - Coldwell Road / Courtney Place

Intersection Approach			Weekday	AM pea	k		Weekday	PM Pea	K
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South: Coldwell Rd	L	0.049	5.7	Α	0	0.044	5.6	Α	0
	Т	0.049	0	Α	0	0.044	0	Α	0
North: Coldwell Rd	Т	0.047	0.1	Α	0.5	0.121	0	Α	0.2
	R	0.047	6	Α	0.5	0.121	5.8	Α	0.2
West: Courtney Pl	L	0.01	5.1	Α	0.3	0.012	5	Α	0.4
	R	0.01	5.5	Α	0.3	0.012	6.1	Α	0.4

Table 6-18 Scenario 3 Results - Coldwell Road / Courtney Place

Intersection Approach			Weekday	AM pea	k		Weekday	PM Pea	k
		DOS	Delay (s)	LOS	95% Queue (m)	DOS	Delay (s)	LOS	95% Queue (m)
South: Coldwell Rd	L	0.186	0.1	Α	0	0.184	0.1	Α	0
	Т	0.032	8.6	Α	1.2	0.022	8.6	Α	0.8
North:	Т	0.1	5.5	Α	3	0.148	5.6	Α	4.4
Coldwell Rd	R	0.1	17.2	С	3	0.148	16.8	С	4.4
West: Courtney PI	L	0.129	4.8	Α	0	0.129	4.8	Α	0
	R	0.129	0.1	Α	0	0.129	0.1	Α	0



6.9 **Restricted Access Vehicles**

Currently, only Coldwell Road is included within the RAV network, and it only allows up to RAV 3 vehicles. However, Courtney Place is proposed to be upgraded, which will also be intended to be included in the RAV 7 network. Coldwell Road is also intended to be included in the RAV 7 network in the future.

In its current form, the Welshpool Road East / Coldwell Road intersection is unable to accommodate RAV 7 movements, and the upgrade to a signalised intersection will be required in the future to accommodate these movements. This should occur as the industrial lots on Coldwell Road are developed but is not required in the short term to support the proposed development.

6.10 **Public Transport Access**

Public transport in the vicinity of the Site is described in Section 2.5. Bus stops are located on Welshpool Road East and Hale Road, which can be accessed via the paths on Logistics Boulevard and Coldwell Road.

6.11 Pedestrian / Cycle Access / Amenity

As part of the subdivision development, a shared path will be provided along Courtney Place, providing access to existing paths on Coldwell Road and Logistics Boulevard as well as the wider network.



7 Summary

The Transport Impact Assessment outlines the transport aspects of the proposed redevelopment focusing on traffic operations, access and car parking. Discussion regarding pedestrian, cycle parking and public transport considerations are also provided.

This assessment has been prepared in accordance with the WAPC Transport Impact Assessment Guidelines Volume 4: Individual Developments (2016) for lodgement with the development application.

The following conclusions have been made in regard to the proposed development:

- The proposed development consists of:
 - 2 warehouse tenancies (12,530m² and 8,800m²);
 - 3 incidental offices (570m² total);
 - 10 bicycle parking spaces; and
 - 98 car parking bays.
- The potential number of trips generated by the development is 25 trips and 24 trips in the AM peak and PM peak, respectively, with a daily total of 322 trips.
- > The SIDRA analysis of four surrounding intersections has been undertaken. The results show that under Scenario 2 (2023 traffic with development), all of the assessed intersections will perform satisfactorily. No upgrades are required in the 2023 opening year.
- The SIDRA analysis of the ultimate scenario (2033 with Precinct 3A, 3B, and 3C traffic) showed that the intersections of Welshpool Road East / Logistics Boulevard / Hale Road and Welshpool Road East / Coldwell Road will perform poorly due to the increased background traffic volume growth, including the full development of MKSEA Precinct 3. Potential mitigation measures have been proposed.

Overall, the proposed development is not anticipated to have a material impact on the traffic operations of the surrounding road network.

Proposed Warehouses and Incidental Offices - Lots 16, 18 and 102 Coldwell Road, Wattle Grove

APPENDIX



WAPC CHECKLIST



now



Item	Provided	Comments/Proposals
Introduction/Background		
name of applicant and consultant	Section 1	
development location and context	Section 1	
brief description of development proposal	Section 1	
key issues	Section 1	
background information	Section 1	
Existing situation		
existing site uses (if any)	N/A	
existing parking and demand (if appropriate)	N/A	
existing access arrangements	N/A	
existing site traffic	Section 2.3	
surrounding land uses	Section 2.1	
surrounding road network	Section 2.2	
traffic management on frontage roads	Section 2.2	
traffic flows on surrounding roads (usually am and pm peak hours)	Section 2.3, 6.6	
traffic flows at major intersections (usually am and pm peak hours)	Section 6.6	
operation of surrounding intersections	Section 6.8	
existing pedestrian/cycle networks	Section 2.6	
existing public transport services surrounding the development	Section 2.5	
Crash data	Section 2.7	
Development proposal		
regional context	Section 1	
proposed land uses	Section 3.1	
table of land uses and quantities	Section 3.1	
access arrangements	Section 3.2	
parking provision	Section 3.4	
end of trip facilities	N/A	
any specific issues	N/A	
road network	N/A	
intersection layouts and controls	N/A	
pedestrian/cycle networks and crossing facilities	N/A	
public transport services	N/A	

Item	Provided	Comments/Proposals
Integration with surrounding area		
surrounding major attractors/generators	Section 5.1	
committed developments and transport proposals	N/A	
proposed changes to land uses within 1200 metres	Section 5.2	
travel desire lines from development to these attractors/generators	N/A	
adequacy of existing transport networks	Section 6	
deficiencies in existing transport networks	N/A	
remedial measures to address deficiencies	N/A	
Analysis of transport networks		
assessment years	Section 6.2	
time periods	Section 6.2	
development generated traffic	Section 6.4	
distribution of generated traffic	Section 6.5	
parking supply & demand	Section 3.4	
base and "with development" traffic flows	Section 6.6	
analysis of development accesses	Section 3.3	
impact on surrounding roads	Section 6.8	
impact on intersections	Section 6.8	
impact on neighbouring areas	N/A	
traffic noise and vibration	N/A	
road safety	Section 2.7	
public transport access	Section 6.10	
pedestrian access / amenity	Section 6.11	
cycle access / amenity	Section 6.11	
analysis of pedestrian / cycle networks	Section 6.11	
safe walk/cycle to school (for residential and school site developments only)	N/A	
Traffic management plan (where appropriate)	N/A	

Proposed Warehouses and Incidental Offices - Lots 16, 18 and 102 Coldwell Road, Wattle Grove

APPENDIX

B

SITE PLAN



now



dimensions on drawings are approximate only and are subject to confirmation by survey.

40,084 sqm. approx.

8,800 sqm.

12,530 sqm.

300 sqm.

200 sqm.

70 sqm.

11,080 sqm. approx.

1,620 sqm. approx.

2,470 sqm. approx.

2,040 sqm. approx.

150 sqm. approx.

98 spaces

EXTENT OF STANDARD HEAVY DUTY PAVING AREA

EXTENT OF LIGHT DUTY PAVING AREA

EXTENT OF BLUE METAL AREA

EXTENT OF LANDSCAPE AREA

EXTENT OF WAREHOUSE AWNING AREA

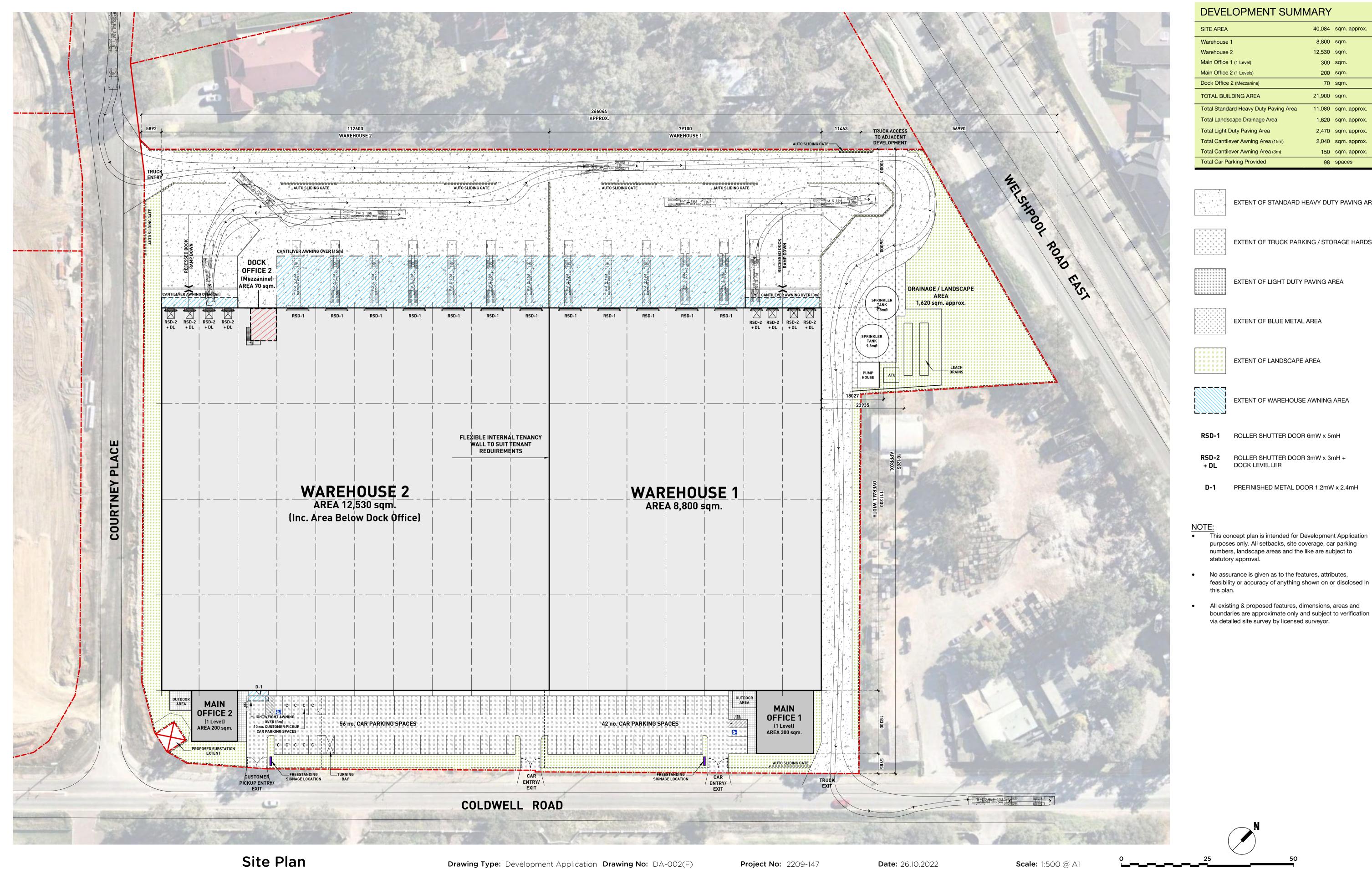
ROLLER SHUTTER DOOR 3mW x 3mH +

PREFINISHED METAL DOOR 1.2mW x 2.4mH

DOCK LEVELLER

EXTENT OF TRUCK PARKING / STORAGE HARDSTAND AREA

21,900 sqm.



PROPOSED DEVELOPMENT

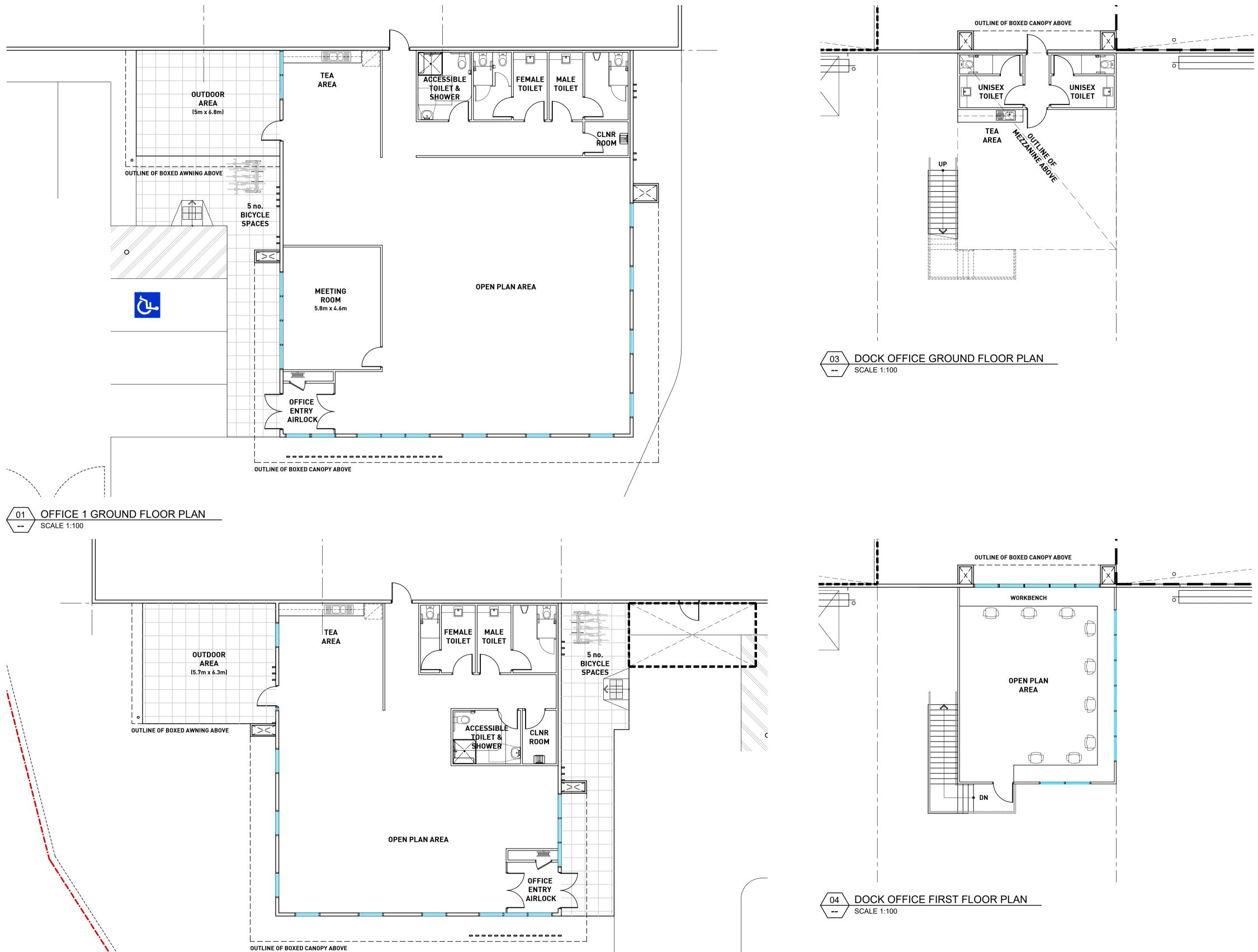




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All setbacks, site coverage, car parking numbers, landscape areas and the like are subject to statutory approval.

• This concept plan is intended for Development Application purposes only.

- No assurance is given as to the features, attributes, feasibility or accuracy of anything shown on or disclosed in this plan.
- All existing & proposed features, dimensions, areas and boundaries are approximate only and subject to verification via detailed site survey by licensed surveyor.

Office Plan

OFFICE 2 GROUND FLOOR PLAN
SCALE 1:100

Drawing Type: Development Application **Drawing No:** DA-100(B)

Project No: 2209-147

Date: 27.07.2022

Scale: 1:100 @ A1









Proposed Warehouses and Incidental Offices - Lots 16, 18 and 102 Coldwell Road, Wattle Grove

APPENDIX

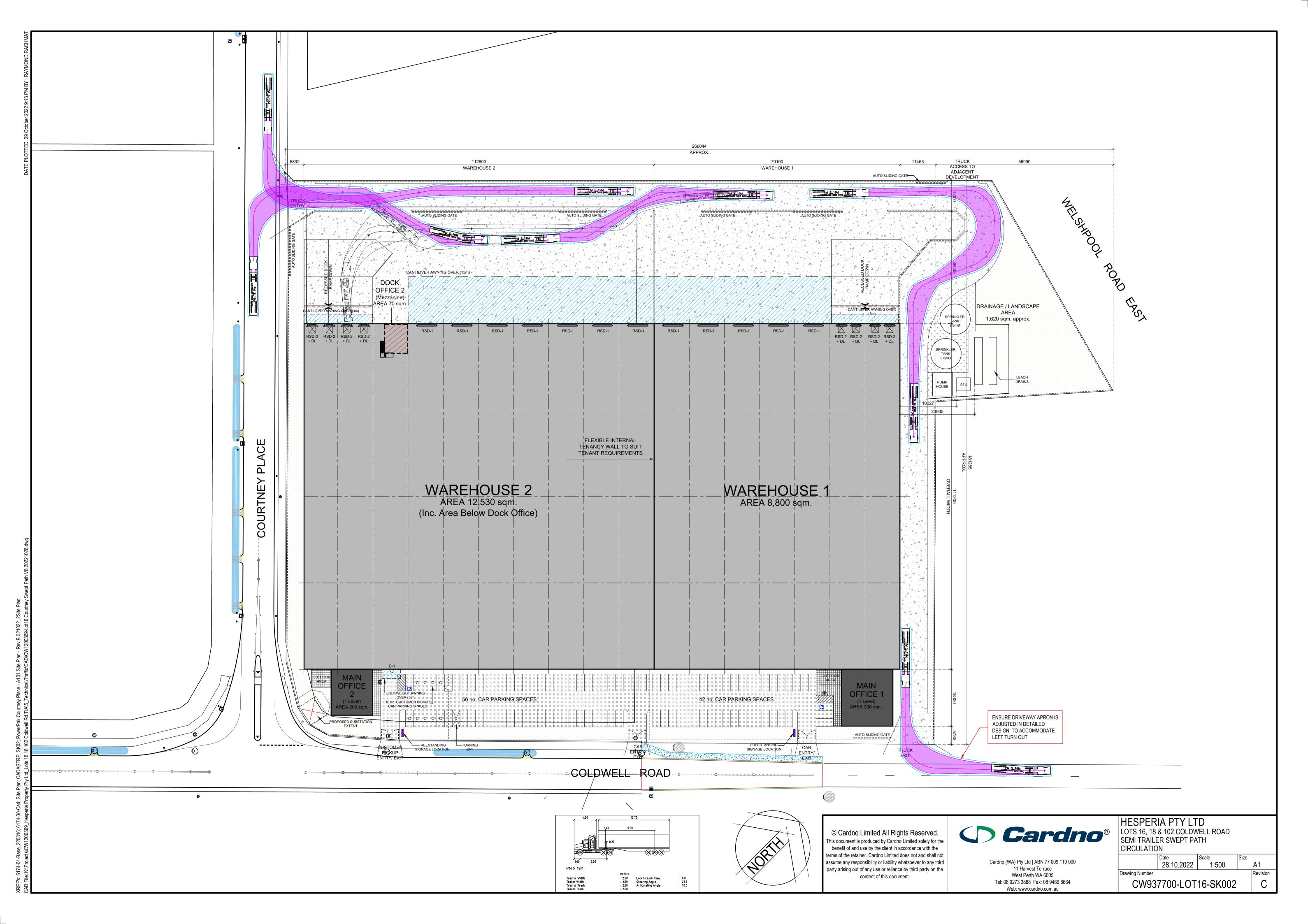


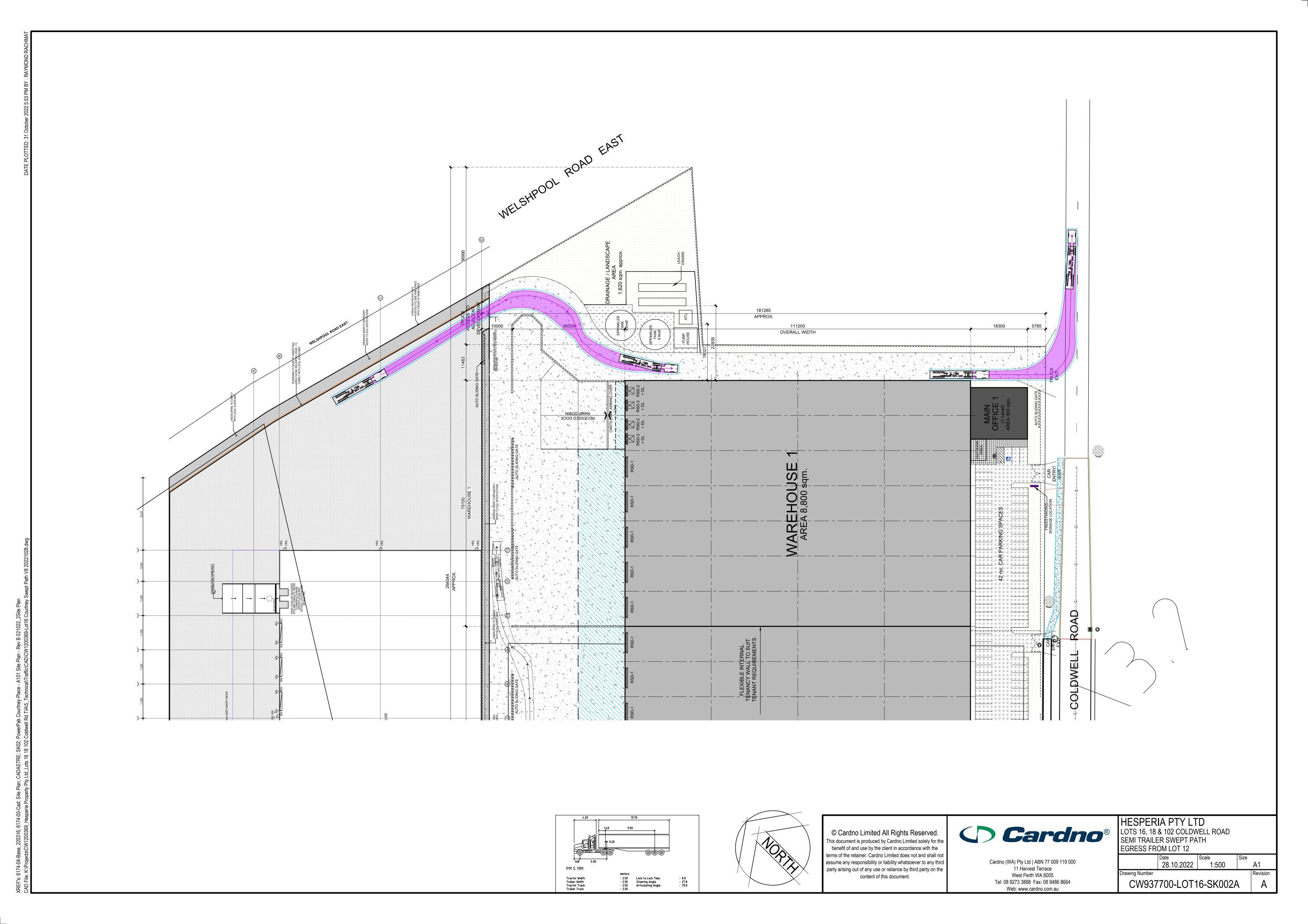
SWEPT PATH ANALYSIS

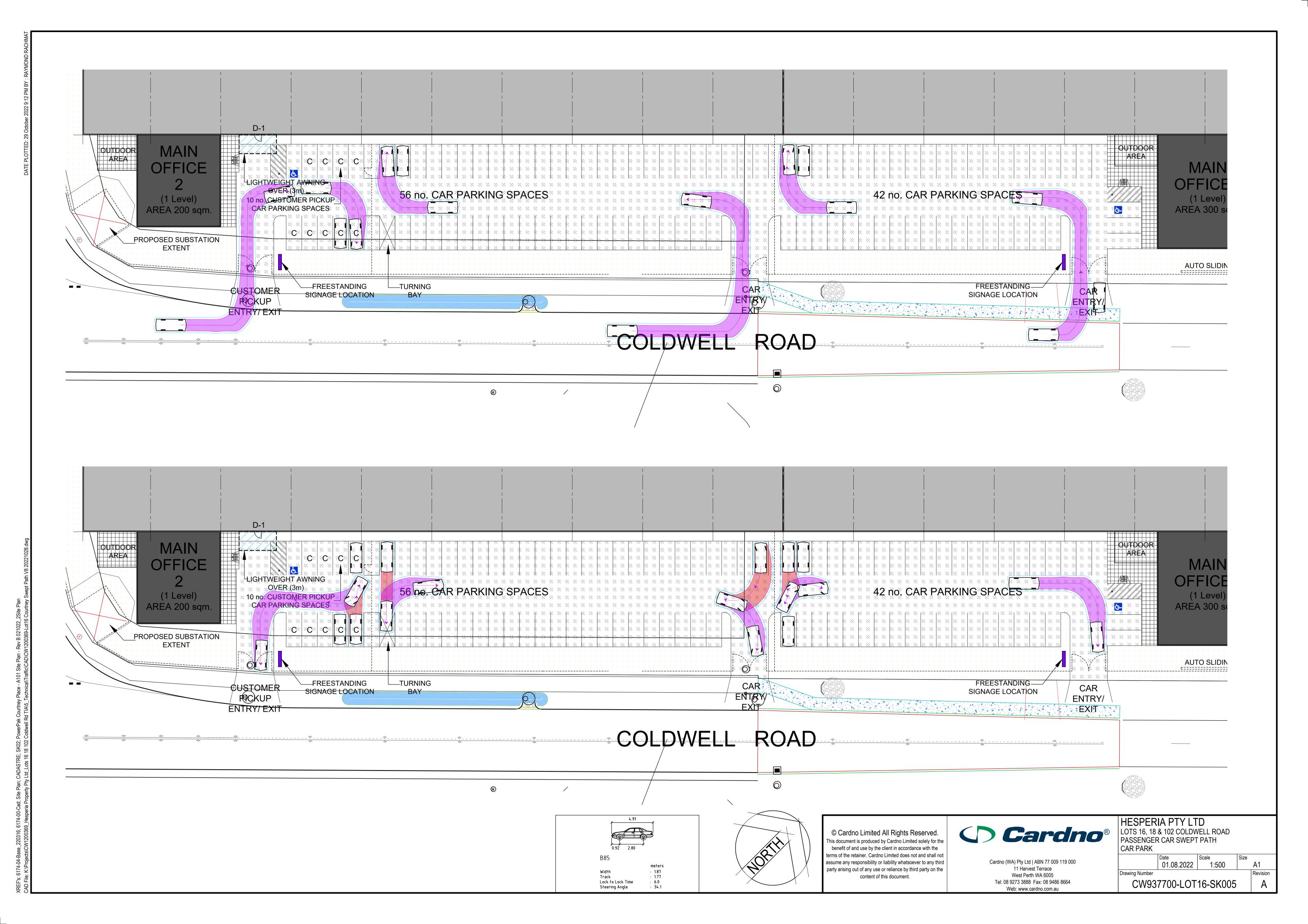


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Proposed Warehouses and Incidental Offices - Lots 16, 18 and 102 Coldwell Road, Wattle Grove

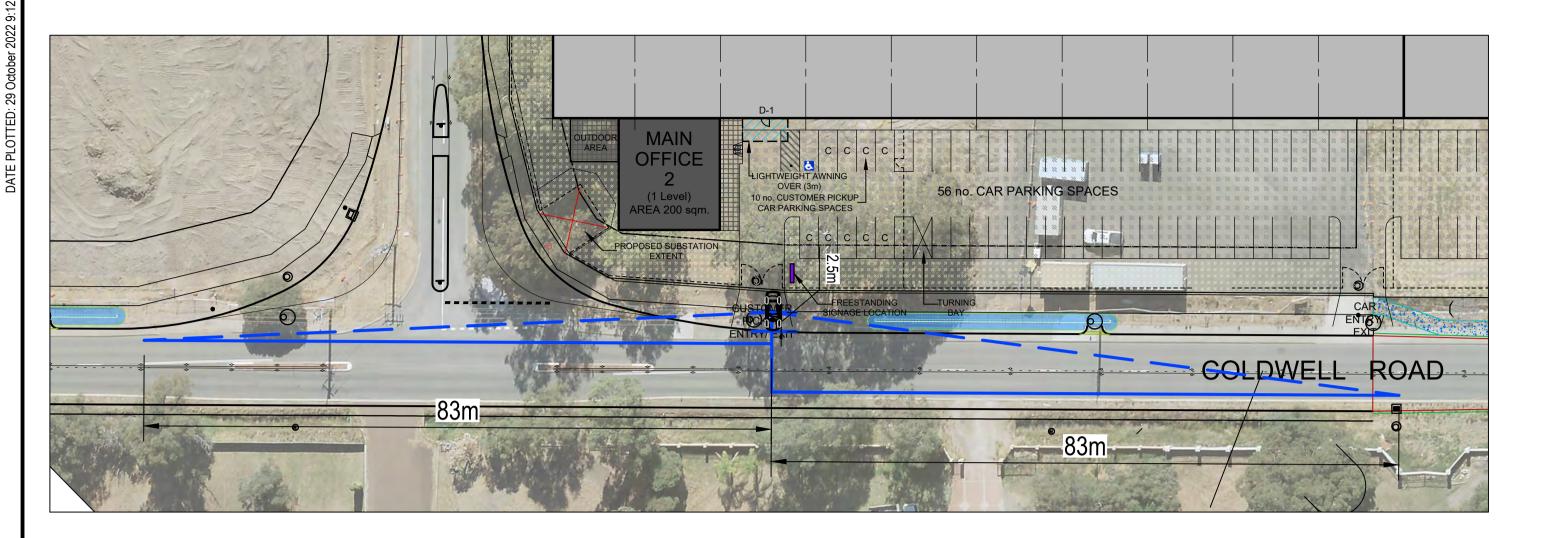
APPENDIX

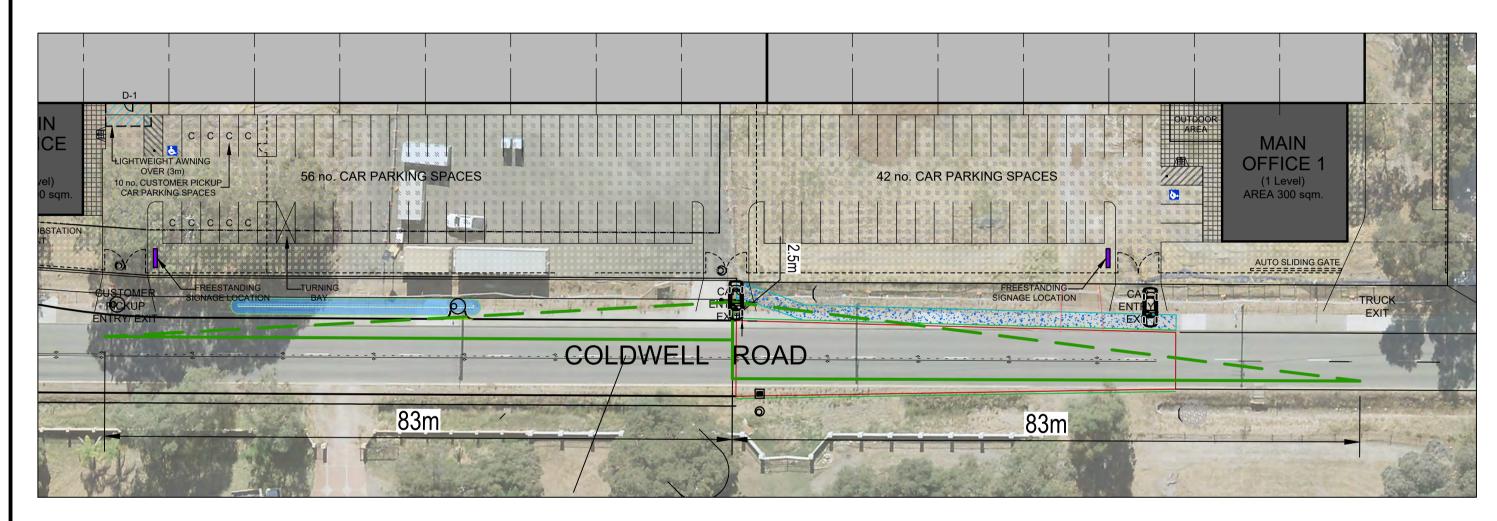
SIGHT DISTANCE ASSESSMENT

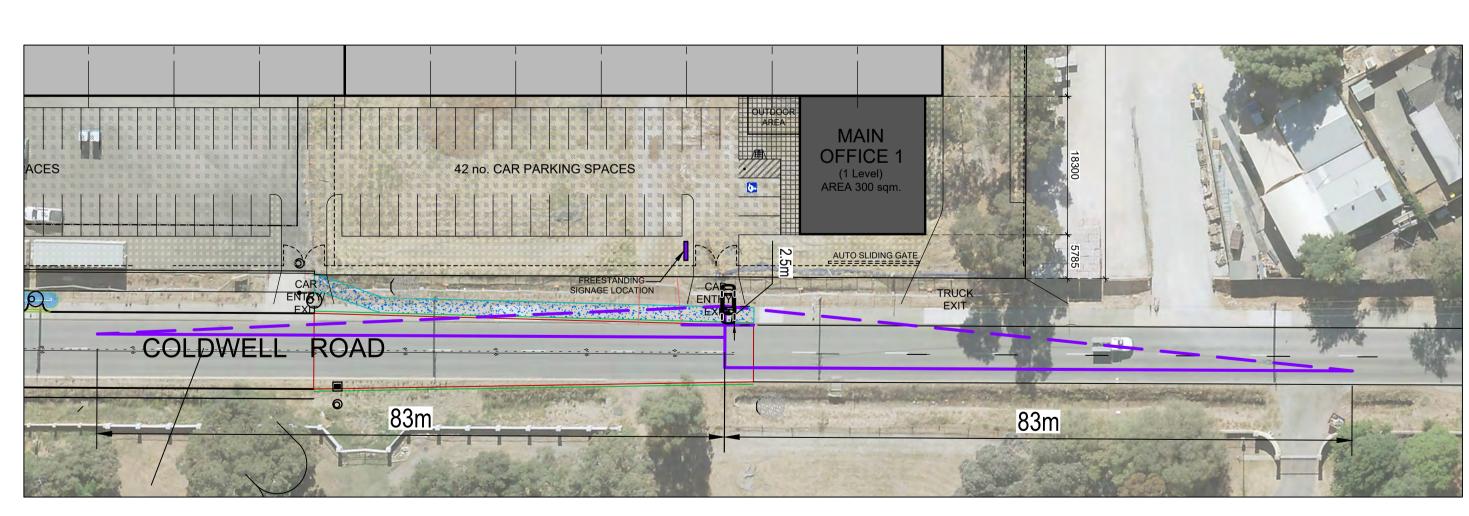


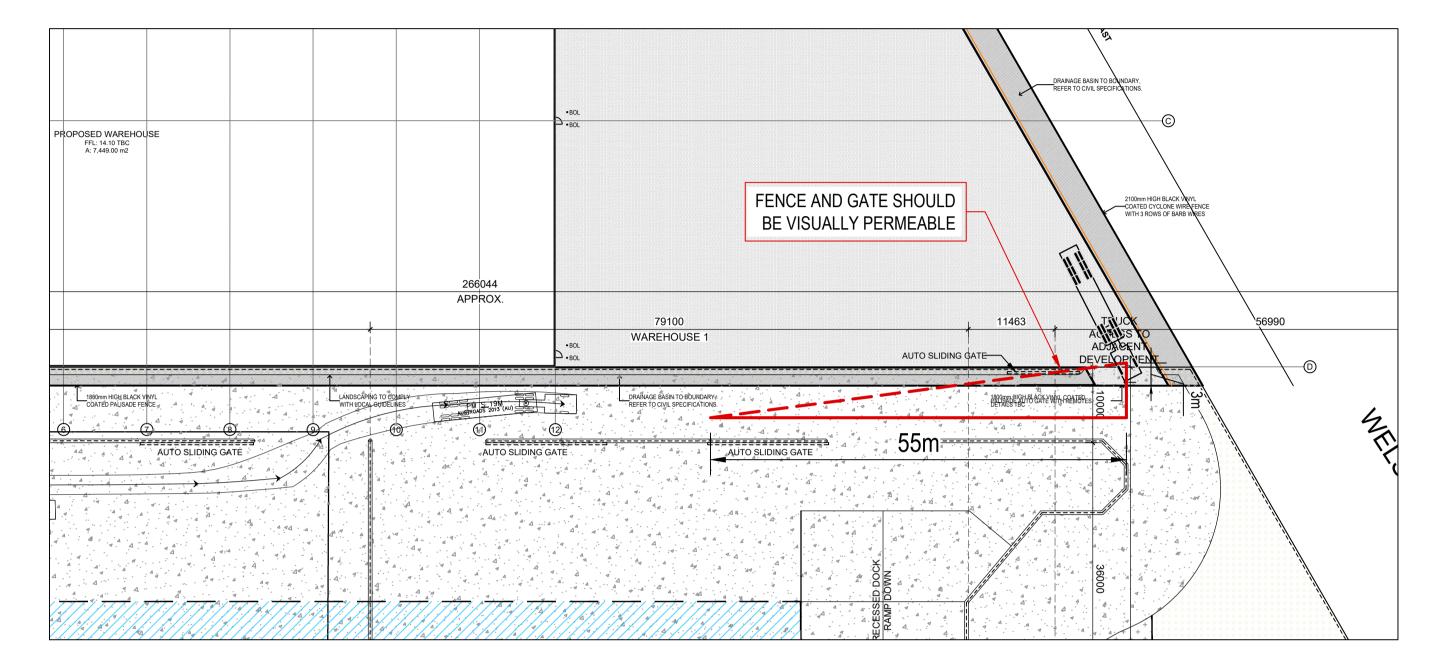
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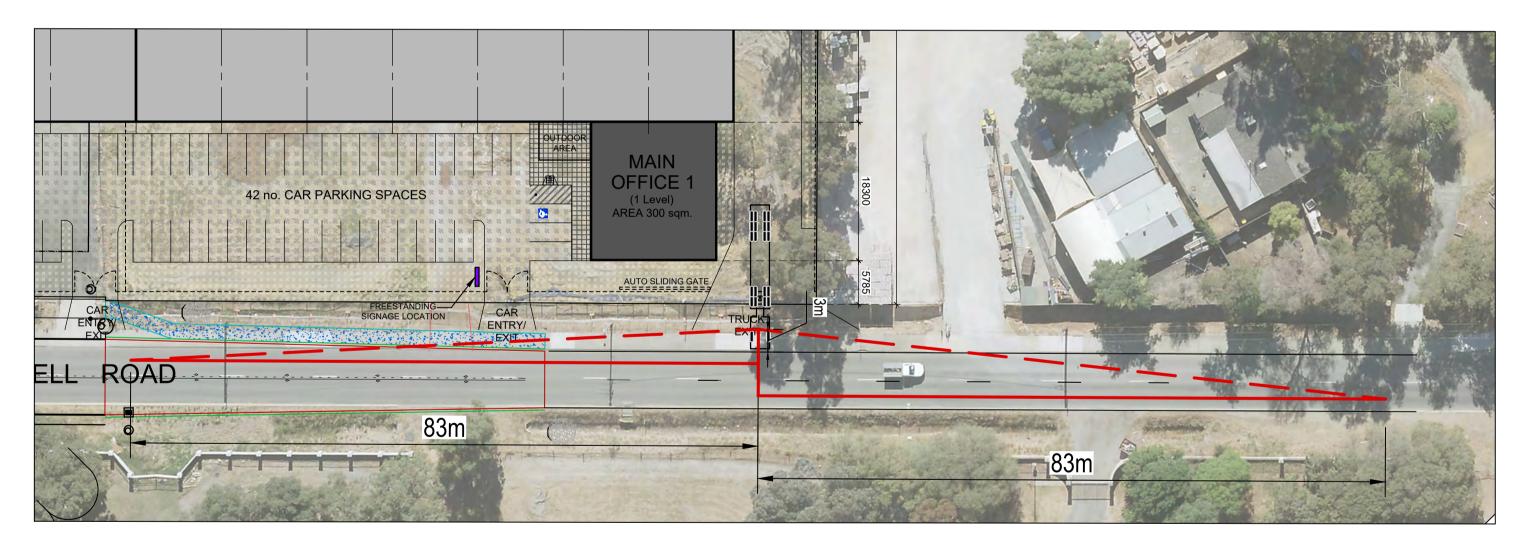


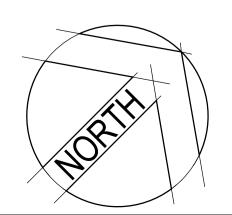


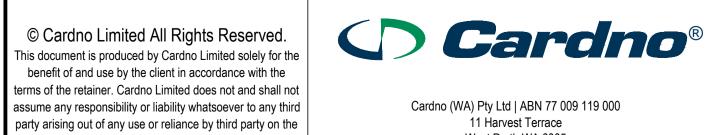












content of this document.

West Perth WA 6005 Tel: 08 9273 3888 Fax: 08 9486 8664 Web: www.cardno.com.au HESPERIA PTY LTD LOTS 16, 18 & 102 COLDWELL ROAD SIGHT DISTANCE ASSESSMENT Date Scale 1:500 A1 Drawing Number CW937700-LOT16-SK006

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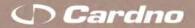
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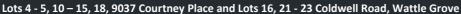




Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

Project No: EP20-157(04)







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Α	July 2022	Sophie McClintock	SAM	Dana Elphinstone	DAE			
	BMP revised to incorporate updated subdivision plan							

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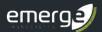
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This document has been prepared primarily to consider the layout of development and/or the appropriate building construction standards applicable to development, where relevant. The measures outlined are considered to be prudent minimum standards only based on the standards prescribed by the relevant authorities. The level of bushfire risk mitigation achieved will depend upon the actions of the landowner or occupiers of the land and is not the responsibility of the author. The relevant local government and fire authority (i.e. Department of Fire and Emergency Services or local bushfire brigade) should be approached for guidance on preparing for and responding to a bushfire.

Notwithstanding the precautions recommended in this document, it should always be remembered that bushfires burn under a wide range of conditions which can be unpredictable. An element of risk, no matter how small, will always remain. The objective of the Australian Standard AS 3959:2018 is to "prescribe particular construction details for buildings to reduce the risk of ignition from a bushfire" (Standards Australia 2018). Building to the standards outlined in AS 3959 does not guarantee a building will survive a bushfire or that lives will not be threatened by the effects of bushfire attack.

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Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



Executive Summary

Hesperia (the proponent) is seeking to progress a subdivision application for Lots 4 - 5, 10 – 15, 18, and 9037 Courtney Place, and Lots 16 and 21 - 23 Coldwell Road, Wattle Grove (herein referred to as 'the site'). The site forms part of Precinct 3C of the broader Maddington Kenwick Strategic Employment Area (MKSEA) and is proposed to be developed for industrial purposes. The site is approximately 10.3 ha in size and is located approximately 13 km south-east of the Perth Central Business District within the City of Kalamunda. It is bounded by developed land within MKSEA Precinct 3A to the west and south-west of the site, Welshpool Road East to the north and Coldwell Road to the east and south-east.

The site is located within a 'bushfire prone area' under the state-wide Map of Bush Fire Prone Areas prepared by the Office of Bushfire Risk Management (OBRM 2021). The identification of a site within an area declared as bushfire prone necessitates further assessment of the determined bushfire risk affecting the site in accordance with *Australian Standard 3959:2018 Construction of buildings in bushfire prone areas* (AS 3959), and the satisfactory compliance of the proposal with the policy measures described in *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) (WAPC 2015) and the *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (the Guidelines) (DPLH & WAPC 2021).

The purpose of this BMP is to assess the bushfire hazards, both within and nearby the site, and identify the 'management' strategies required to ensure the development of the land is consistent with the intent of SPP 3.7 - to preserve life and reduce the impact of bushfire on property and infrastructure.

This BMP has followed the requirements of SPP 3.7 to identify bushfire risk and the bushfire protection measures that will make the land suitable for its intended purpose. As part of this, a Bushfire Attack Level (BAL) assessment involving the classification and condition of vegetation within 150 m of the site has been undertaken.

As part of assessing the long-term bushfire risk to the site, vegetation classifications have been detailed for the post-development scenario (in accordance with AS 3959) in order to inform a bushfire attack level (BAL) assessment. The following bushfire hazards were identified as applicable to the site following residential development:

- Forest (Class A) vegetation, which was identified external to the north-east, east and south of the site is assumed to remain in its existing condition and be a bushfire hazard.
- Shrubland (Class C) vegetation, which was identified external to the north-west of the site and is assumed to remain in its existing condition and be a bushfire hazard.
- Scrub (Class D) vegetation to the east of the site assumed to remain in its existing condition and be a bushfire hazard.
- Grassland (Class G) vegetation to the north-west and south-east of the site is assumed to remain in its existing condition and be a bushfire hazard.

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



In order to resolve the potential for bushfire to affect the site, a post development scenario has been assumed in which all classified vegetation within future industrial lots and road reserves within the site will be removed and converted to non-vegetated (exclusion 2.2.3.2(e)) and low threat vegetation (exclusion 2.2.3.2(f)). All other classified vegetation outside the site, is assumed to remain in its existing condition and therefore pose a bushfire risk to the site in the long-term.

Compliance Assessment

The outcomes of this BMP demonstrate that as development progresses, it will be possible for an acceptable solution to be adopted for each of the applicable bushfire protection criteria outlined in the Guidelines. This includes:

- **Element 1 Location**: all habitable buildings can be located in an area with a BAL rating of BAL-29 or below based on implementing appropriate separation from nearby bushfire hazards.
- **Element 2 Siting and Design**: the proposed subdivision provides sufficient area for all lots to achieve Asset Protection Zone (APZ) with separation equivalent to BAL-29 or below. This can be achieved through the provision of appropriate separation from external bushfire hazards, and can be accommodated through the location of hardstand areas and public roads.
- Element 3 Vehicular Access: future lots will have access via Courtney Place within the site, and
 Coldwell Road to the east of the site. Courtney Place provides egress options to the west, whilst
 Coldwell Road provides egress to the north and south. Coldwell Road connects to Welshpool
 Road to the immediate north of the site, which provides further egress to the east and west of
 the site.
- **Element 4 Water**: the development will be provided with a permanent and reticulated water supply to support onsite firefighting requirements.

The management/mitigation measures to be implemented through the proposed subdivision of the site have been outlined as part of this BMP. Following certification, the BAL ratings indicated within this BMP (or as part of future stage-based BAL assessments) can be used to support future building approval processes.

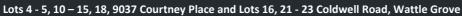
Accordingly, having regard to clause 6.11 of SPP 3.7, the precautionary principle has been satisfied. Following certification, the BAL ratings determined within this BMP can be used to support future building approval processes for any Class 1, 2, 3 or 10a buildings which may be constructed within the site, and also inform the location of all future habitable buildings within the lots.



Lots 4 - 5, 10 – 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

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Figure 1: Site Location and Topographic Contours

Figure 2: AS 3959 Vegetation Classifications and Effective Slope

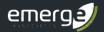
Figure 3: Bushfire Attack Level Contour Plan

Figure 4: Spatial Representation of Bushfire Management Strategies

Appendices

Appendix A

Plan of Subdivision (TBB 2022)



Abbreviation Tables

Table A1: Abbreviations – General terms

General terms	
AHD	Australian Height Datum
AS	Australian Standard
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
ВМР	Bushfire Management Plan
BPAD	Bushfire Planning and Design
ESA	Environmentally Sensitive Area
FDI	Fire Danger Index
FZ	Flame Zone
TEC	Threatened ecological community

Table A2: Abbreviations – Organisations

Organisations	
СоК	City of Kalamunda
DBCA	Department of Biodiversity, Conservation and Attractions
DWER	Department of Water and Environmental Regulation
DFES	Department of Fire and Emergency Services
DPLH	Department of Planning, Lands and Heritage
OBRM	Office of Bushfire Risk Management
WAPC	Western Australian Planning Commission

Table A3: Abbreviations – Legislation and policies

Legislation	
Guidelines	Guidelines for Planning in Bushfire Prone Areas version 1.4 (DPLH & WAPC 2021)
SPP 3.7	State Planning Policy 3.7 Planning in Bushfire Prone Areas (WAPC 2015)



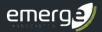


Table A4: Abbreviations – Planning and building terms

Planning and building terms	
LPS	Local Planning Scheme
MRS	Metropolitan Region Scheme
NCC	National Construction Code

Table A4: Abbreviations – units of measurement

Units of measurement	
cm	Centimetre
ha	Hectare
m	Metre
m²	square metre
m AHD	m in relation to the Australian height datum
mm	Millimetre



1 Introduction

1.1 Background

Hesperia (the proponent) is seeking to progress a subdivision application for Lots 4 - 5, 10 – 15, 18, and 9037 Courtney Place, and Lots 16 and 21 - 23 Coldwell Road, Wattle Grove (herein referred to as 'the site'). The site forms part of Precinct 3C of the broader Maddington Kenwick Strategic Employment Area (MKSEA), and is proposed to be developed for industrial land uses, with the proposed subdivision layout shown in **Appendix A**. The site is approximately 15.3 hectares (ha) in size and is located approximately 13 km south-east of the Perth Central Business District within the City of Kalamunda, as shown in **Figure 1**. It is bounded by developed industrial land uses within MKSEA Precinct 3A to the west and south-west of the site, Welshpool Road East to the north and Coldwell Road to the east and south-east.

The site is located within a 'bushfire prone area' under the state-wide Map of Bush Fire Prone Areas prepared by the Office of Bushfire Risk Management (OBRM 2021) as shown in **Plate 1**. The identification of a site within an area declared as bushfire prone necessitates a further assessment of the determined bushfire risk affecting the site in accordance with *Australian Standard 3959:2018 Construction of buildings in bushfire prone areas* (AS 3959), and the satisfactory compliance of the proposal with the policy measures described in *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) (WAPC 2015) and the *Guidelines for Planning in Bushfire Prone Areas Version 1.4* (the Guidelines) (DPLH & WAPC 2021).

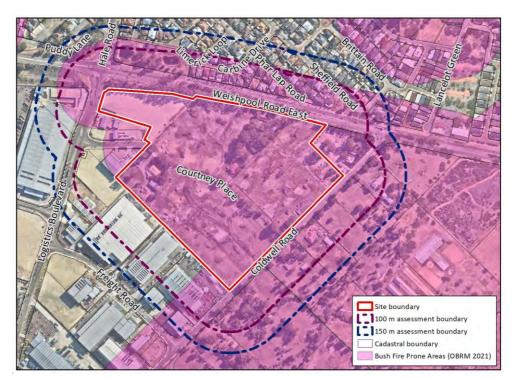
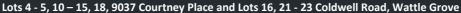


Plate 1: Areas within and surrounding the site identified as 'bushfire prone areas' (as indicated in purple) under the state-wide Map of Bush Fire Prone Areas (OBRM 2021).





The purpose of SPP 3.7 and its policy intent is to preserve life and reduce the impact of bushfire on property and infrastructure through effective risk-based land use planning. Importantly, it is risk-based, requiring a methodical approach to identify and evaluate the hazards and provide the treatments to ameliorate these hazards to an acceptable level. SPP 3.7 requires that the determining authority give consideration to the precautionary principle (clause 6.11 in SPP 3.7) and they must be satisfied that the potential for significant adverse impacts can be adequately reduced or managed. In particular:

SPP 3.7 does not require that there be no increase at all in the threat of bushfire to people property or infrastructure. Rather, as is seen in clause 2 of SPP 3.7, the intention of the policy is to 'implement effective, risk¬based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure'. (emphasis added) ¹

1.2 Aim of this report

The purpose of this BMP is to assess bushfire hazards both within the site and nearby, and demonstrate that the threat posed by any identified hazards can be appropriately mitigated and managed. This BMP has been prepared to support the proposed subdivision of the site and addresses the requirements of SPP 3.7 (WAPC 2015), the Guidelines (DPLH & WAPC 2021) and AS 3959 (Standards Australia 2018). The document includes:

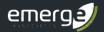
- An assessment of the existing classified vegetation in the vicinity of the site (within 150 m) and consideration of bushfire hazards that will exist in the post development scenario (Section 3).
- Commentary on how the future development can achieve the bushfire protection criteria
 outlined within the Guidelines including an indication of BAL ratings likely to be applicable to
 future dwellings (Section 5).
- An outline of the roles and responsibilities associated with implementing this BMP (see **Section 6**).

1.3 Statutory policy and framework

The following key legislation, policies and guidelines are relevant to the preparation of a bushfire management plan:

- Bush Fires Act 1954
- Fire and Emergency Services Act 1998
- Planning and Development Act 2005 and associated regulations
- Building Act 2011 and associated regulations
- State Planning Policy 3.7 Planning in Bushfire Prone Areas (WAPC 2015)
- Guidelines for Planning in Bushfire Prone Areas Version 1.4 (DPLH & WAPC 2021)
- Australian Standard AS 3959 2018 Construction of buildings in bushfire prone areas (Standards Australia 2018)

¹ Harmanis Holdings No. 2 Pty Ltd and Western Australian Planning Commission [2019] WASAT 43 (Harmanis).



1.4 Description of the proposed development

The site is proposed to be developed for industrial purposes, in line with the proposed subdivision plan provided in **Appendix A**. The development within the site will include:

- The creation of seven (7) industrial lots ranging in size from 8971 m² to 4.4 ha; Realignment and widening of Courtney Place adjacent to Lots 4 5 and 10 13 Courtney Place;
- Demolition of a number of existing buildings; and
- The application of restrictive covenants over parts of Logistics Boulevard and Welshpool Road.

The proposed development within the site is consistent with the 'Industrial' zoning under the *Metropolitan Region Scheme* (MRS), as shown in **Plate 2** below. The site is zoned 'Light industry' and 'General industry' under the *City of Kalamunda Local Planning Scheme No. 3*.

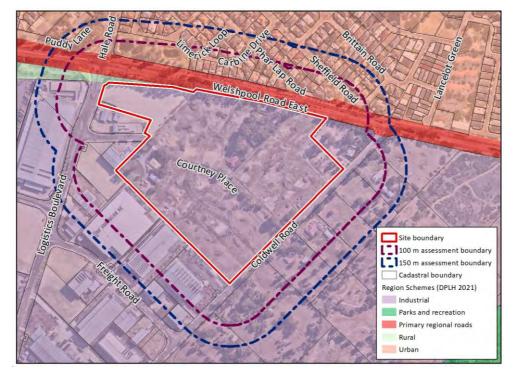
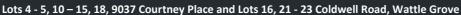


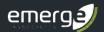
Plate 2: MRS zones and reserves within and surrounding the site.

1.5 Description of land characteristics

The natural topographic contours indicate that the site is generally flat, with the majority of the site located at the 13 m Australian height datum (m AHD), with localised rises to 14 m AHD, as shown in **Figure 1**.

A review of publicly available historical aerial imagery indicates the majority of the site was cleared prior to 1953 (Landgate 2020), except for a few scattered paddock trees. Since this initial clearing, the site was primarily used for rural-residential land uses, which included the planting of vegetation (mostly trees) by landowners. The site has since been cleared of nearly all vegetation as the land use transitions from rural to industrial, consistent with the approved planning framework.





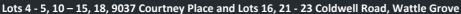
2 Environmental Considerations

In accordance with the *Bushfire Management Plan – BAL Contour* template prepared by the Department of Planning, Lands and Heritage (2018), this BMP has considered whether there are any environmental values that may require specific consideration through either protection, retention or revegetation. To support this, a review of publicly available databases has been undertaken, with particular reference to the Shared Location Information Platform (SLIP) databases. A summary of the search results has been provided in **Table 1**.

The majority of the site has been cleared of vegetation and is mostly pasture grasses with scattered mature trees. As a result, the site contains limited environmental values of conservation significance.

Table 1: Summary of potential environmental considerations that may be associated with the site (based on a search of the SLIP databases)

Key environmental feature (information in brackets refers to mapping data source)	Yes / no / potentially occurring within the site	If yes / potentially, describe value that may be impacted
Conservation category wetlands and buffer (Geomorphic wetlands, Swan Coastal Plain (DBCA-019))	No	Not applicable. No conservation category wetlands are located within the site, or adjacent to the site.
RAMSAR wetlands (DBCA-010)	No	Not applicable. No RAMSAR wetlands are located within or adjacent to the site.
Waterways (DWER-031)	No	Not applicable. No waterways are located within or adjacent to the site.
Threatened and priority flora (DBCA-036)	No	No threatened flora are identified within the mapping, and due to the historical and most recent clearing, it is considered unlikely that any threatened flora species occur within the site. In addition, a <i>Flora and Vegetation Assessment</i> was undertaken by (Emerge Associates 2021a) across the entire MKSEA which did not identify threatened flora within the surveyed areas of the site.
Threatened and priority fauna (DBCA-037)	Potentially	The mapping identifies several priority and threatened fauna records within close proximity to the site. However, due to the historical clearing, it is unlikely that any threatened or priority fauna species occur within the site. A Basic Fauna and Targeted Black Cockatoo Assessment was undertaken by (Emerge Associates 2021b) identified limited potential foraging habitat for threatened black cockatoo species within the surveyed areas of the site.
Threatened ecological communities (DBCA-038)	No	No threatened ecological communities are identified within the mapping, and due to the historical clearing, it is considered unlikely that any threatened flora species occur within the site. In addition, a <i>Flora and Vegetation Assessment</i> , undertaken by (Emerge Associates 2021a), did not identify any threatened ecological communities within the surveyed areas of the site.
Department of Biodiversity, Conservation and Attractions (DBCA) legislated lands or waters (DBCA-011)	No	Not applicable. No DBCA legislated lands or waters are located within or adjacent to the site.



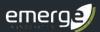


Table 1: Summary of potential environmental considerations that may be associated with the site (based on a search of the SLIP databases) (continued).

Key environmental feature (information in brackets refers to mapping data source)	Yes / no / potentially occurring within the site	If yes / potentially, describe value that may be impacted
Bush Forever areas (DOP-071)	No	Not applicable. No DBCA legislated lands or waters are located within or adjacent to the site.
Clearing regulations – Environmentally Sensitive Areas (DWER-046)	No	Not applicable. No Bush Forever areas are located within or adjacent to the site.
Swan Bioplan Regionally Significant Natural Areas 2010 (DWER-070)	No	Not applicable. No environmentally sensitive areas are identified within or adjacent to the site.
Aboriginal heritage (DAA-001)	No	Not applicable. No Aboriginal heritage places are identified within or adjacent to the site.
Non-indigenous heritage (SHO-003)	No	Not applicable. No state-listed heritage places are identified within or adjacent to the site.

2.1 Native vegetation – modification and clearing

Any existing vegetation within the site will be removed as part of subdivision works.

Where clearing of native vegetation is undertaken to implement a subdivision approval under the *Planning and Development Act 2005* (e.g. within the site), it is exempt from requiring a clearing permit under Schedule 6 of the *Environmental Protection Act 1986*, and as such no such approvals are anticipated to be required. Additionally, a clearing permit (or valid exemption) is not required where non-native vegetation is proposed to be modified or removed.

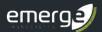
2.2 Revegetation and landscape plans

No revegetation is proposed as part of the subdivision or future development of the site. Landscaped gardens may be constructed within the site as part of future development. These areas will be managed to a low threat standard in accordance with Section 2.2.3.2 of AS 3959, including:

- Regular mowing/slashing of grass to less than 100 mm in height (where present).
- Irrigation of grass and garden beds (where required).
- Regular removal of weeds and built-up dead material (such as fallen branches, leaf litter etc.).
- Low pruning of tree branches less than 2 m from the ground.

The remainder of the site will be maintained free of vegetation.

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



3 Bushfire Assessment Results

Bushfire risk for the site has been appropriately considered both in context to the site and potential impact upon the site using AS 3959 and the Guidelines.

The objective of AS 3959 is to reduce the risk of ignition and loss of a building to bushfire. It provides a consistent method for determining a radiant heat level (radiant heat flux) as a primary consideration of bushfire attack. AS 3959 measures the Bushfire Attack Level (BAL) as the radiant heat level (kW/m²) over a distance of 100 m. AS 3959 also prescribes deemed-to-satisfy construction responses that can resist the determined radiant heat level at a given distance from the fire. It is based on six Bushfire Attack Level (BAL) ratings: BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

A BAL contour plan has been prepared in accordance with Appendix Three of the Guidelines and Method 1 of AS 3959 to determine the BAL ratings likely to be applicable to future buildings. This has been based on the vegetation classifications and the effective slope under the vegetation, with the result presented on the BAL contour plan, as shown in **Figure 3**.

3.1 Assessment inputs

This bushfire attack level (BAL) assessment was undertaken in accordance with Method 1 of AS 3959. Vegetation classifications and effective slope have been detailed in **Figure 2**. A BAL Contour Plan has been prepared based developed condition of the site in accordance with Appendix Three of the Guidelines and is provided as **Figure 3**. A site visit was undertaken on 2 June 2022.

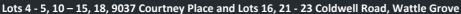
3.1.1 Assumptions

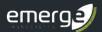
The BAL assessment is based on the following assumptions:

- Designated FDI: 80
- Flame temperature: 1090 K
- Effective slope beneath classified vegetation: flat/upslope
- **Setback distances**: as per Table 2.5 in AS 3959 with the relevant distances used to inform the BAL contour plan summarised in **Table 3** with the BAL contour provided in **Figure 3**.

In addition to the above, the following key assumptions have informed this assessment:

- All classified vegetation within the site will be removed or modified from its current state to achieve low threat in accordance with Section 2.2.3.2 of AS 3959. These areas will be maintained by the proponent (or future landowners) in perpetuity. Management of low threat areas may include (but is not limited to):
 - Regular mowing/slashing of grass to less than 100 mm in height (i.e. where turf is present).
 - Irrigation of grass and garden beds.
 - Regular maintenance including removal of weeds and dead material.
 - Low pruning of trees (where required).
 - Application of ground covers such as mulch or non-flammable materials.





- Areas of low threat vegetation identified outside of the site will continue to be maintained to
 this standard in accordance with existing maintenance regimes. These areas will achieve low
 threat based on typical urban requirements (and based on Section 2.2.3.2 of AS 3959, in
 particular as 'non-vegetated' or 'low threat' vegetation). This includes the areas of the
 Welshpool Road East road reserve identified as 'low threat', which the City of Kalamunda (CoK)
 have confirmed are managed and maintained by the City.
- Classified vegetation that has been identified outside of the site has been assumed to remain in its current state (unless stated otherwise), and will, therefore, remain a bushfire hazard to development within the site.
- Existing residential properties surrounding the site will continue to be maintained in accordance with the City of Kalamunda Fire Hazard Reduction Notice.

3.1.2 Vegetation Classification

All vegetation within 150m of the site was classified in accordance with Clause 2.2.3 of AS 3959. Each distinguishable vegetation plot is described in **Table 1** and shown in **Figure 2**. This classification is a conservative assessment of the vegetation which includes areas that should be managed to a low threat under the City of Kalamunda Fire Break Notice. The assignment of the vegetation classifications is based on consideration of the fuel layers of different vegetation types. This can be broken down into five segments as illustrated in **Plate 3** below.

Not all vegetation is a classified bushfire risk. Vegetation and ground surfaces that are exempt from classification as a potential hazard are identified as a low threat under Section 2.2.3.2 of AS 3959. Low threat vegetation includes the following:

- a) Vegetation of any type that is more than 100 m from the site.
- b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified.
- c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified.
- d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified.
- e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings, and rocky outcrops.
- f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves, and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and wind breaks.

Lots 4 - 5, 10 – 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



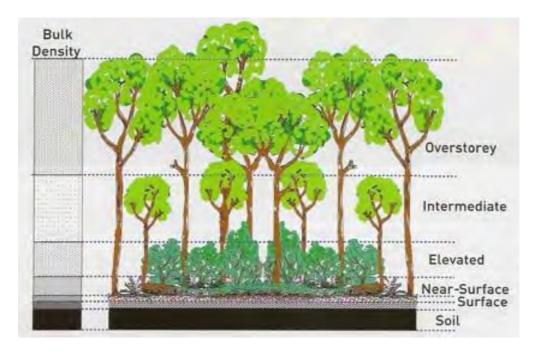


Plate 3: The five fuel layers in a forest environment that could be associated with fire behaviour (Gould et al. (2007)

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

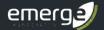


Table 2: AS 3959 Vegetation Classification (refer to Figure 2)

Photo ID: 1 Plot: 1

Vegetation Classification or Exclusion Clause

Forest (Class A)

Description / Justification for Classification

Forest vegetation has been identified northwest of the site (Plot 1).

This vegetation is characterised by non-native and native eucalyptus trees growing to a height of up to 20 m, with unmanaged undergrowth observed. Though a small pond is evident, it is anticipated during drier months of the year, this portion will be dry and a source of fuel for bushfire.



Photo ID:

2

Plot:

2

Vegetation Classification or Exclusion Clause

Forest (Class A)

Description / Justification for Classification

Forest vegetation has been identified east of the site with part of an adjacent private property (Lot 17) (Plot 2).

This vegetation to is characterised by a patch of native and non-native trees growing to a height of up to 20 m, with fuel layers extending into the elevated, intermediate and overstorey layers. Unmanaged grass and understorey were evident on site at the time of observation. Forest vegetation is evident in part of the lot, the remainder being grassland.



Photo ID:

Plot:

2

Vegetation Classification or Exclusion Clause

Forest (Class A)

Description / Justification for Classification

Forest vegetation has been identified east of the site within a rural residential property (Lot 87).

Forest vegetation has been characterised by *Melaleuca* and other native and non-native vegetation up to 6 m in height forming more than 30% of the foliage cover. Multiple eucalyptus trees were also evident. The forest vegetation makes up a small portion of the lot and is separated from the site by Coldwell Road.



Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



Table 2: AS 3959 Vegetation Classification (refer to Figure 2) (continued)

3

Photo ID:

4

Plot:

Vegetation Classification or Exclusion Clause

Forest (Class A)

Description / Justification for Classification

Further forest vegetation has been identified south of the site (Plot 3) within a rural residential property (Lot 67). This lot is separated from the site by Coldwell Road. The vegetation within this lot was characterised by a variety of non-native and native trees and unmanaged undergrowth. The canopy was consistent with 30% - 70% foliage cover, consisting of heights up to 20 m. This lot encompassed part forest vegetation, part grassland vegetation and a minor portion of non-vegetated area.

Photo ID:

5

Plot:

3

Vegetation Classification or Exclusion Clause

Forest (Class A)

Description / Justification for Classification

Forest vegetation in Plot 3 continues south of the site within a private rural residential property (Lot 68). Lot 68 is separated from the site by Coldwell Road.

A variety of native trees were evident within the property within areas of unmanaged undergrowth encompassing part of the lot. This lot included non-vegetated areas and grassland vegetation.

Photo ID:

12

Plot:

4

Vegetation Classification or Exclusion Clause

Shrubland (Class C)

Description / Justification for Classification

Shrubland has been identified north-west of the site within the southern Welshpool Road East embankment.

The embankment has been replanted with low-lying shrubs and mulch, however, are expected to grow up to heights of 1.5 m and is not undergoing maintenance. It is anticipated that this area will contribute as a fire fuel load in future so therefore is classified as Shrubland (Class C).







Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



Table 2: AS 3959 Vegetation Classification (refer to Figure 2) (continued)

Photo ID: 6 Plot: 5

Vegetation Classification or Exclusion Clause

Grassland (Class G)

Description / Justification for Classification

Grassland vegetation has been identified south-east of the site within rural residential properties encompassed with the Lots 67 & 68, Lots 82 – 87 Coldwell Road. Grassland vegetation was identified in all or part of the lots.

Grassland has been characterised with paddock grasses, though some areas were managed substantial portions of the lot were unmanaged, showing grasses to heights of 0.5 m. Therefore, it would contribute to the fuel load in the case of a bushfire.

Photo ID: 7

Plo

5



Grassland (Class G)

Description / Justification for Classification

Grassland vegetation has been identified within rural residential lots south-east of the site (Lot 67).

Grassland vegetation consisted of paddock grasses and some native trees however the overstorey foliage cover was less than 10% coverage. Grasses appeared slashed in portions, but substantial areas were unmanaged and would contribute as a bushfire hazard.

Photo ID:

8

Plot:

5

Vegetation Classification or Exclusion Clause

Grassland (Class G)

Description / Justification for Classification

Grassland vegetation was observed east of the site within Lot 85, separated from the site by Coldwell Road.

The grassland vegetation consisted of paddocks grasses with some scattered mature trees.







Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

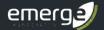


Table 2: AS 3959 Vegetation Classification (refer to Figure 2) (continued)

Photo ID:

9

Plot:

Vegetation Classification or Exclusion Clause

Grassland (Class G)

Description / Justification for Classification

Grassland vegetation has been identified south-east of the site along the road verge of Coldwell Road.

The grassland vegetation consisted of native and non-native grasses up to 0.5m in height. The grasses appeared unmanaged and partially cured, contributing to the bushfire load.



Photo ID:

10

Plot:

6

Vegetation Classification or Exclusion Clause

Non-vegetated (exclusion clause 2.2.3.2(e))

Description / Justification for Classification

Within and surrounding the site, non-vegetated areas exist such as existing roads, areas of bare mineral earth and residential buildings have been excluded in accordance with Section 2.2.3.2(e) of AS 3959.

It is noted that residential landholdings may contain managed grass, garden areas or verge, however, for ease of reference have been excluded on the basis that these form part of developed lots.

Photo ID: 11 Plot:

Vegetation Classification or Exclusion Clause

Low threat vegetation (exclusion clause 2.2.3.2(f))

Description / Justification for Classification

Areas of low threat vegetation have been identified north-west, western portion of the site, in addition to the north and east of the site.

Area of low threat is currently managed to a low-threat standard by relevant authorities including regular slashing and irrigation, and removal of low hanging branches.





Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

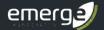


Table 2: AS 3959 Vegetation Classification (refer to Figure 2) (continued)

Photo ID:

13

Plot:

Vegetation Classification or Exclusion Clause

Low threat vegetation (exclusion clause 2.2.3.2(f))

Description / Justification for Classification

Vegetation to the north of the site within the Welshpool Road East Reserve and public open space (POS) have been excluded as these areas are managed by the relevant authorities, including removal of dead material and low hanging branches, irrigation of turf and slashing.



Photo ID:

14

Plot:

7

Vegetation Classification or Exclusion Clause

Low threat vegetation (exclusion clause 2.2.3.2(f))

Description / Justification for Classification

Areas of the Welshpool Road East verge, to the north of the site, comprise low threat vegetation associated with a row of planted trees over a cleared understorey. CoK have confirmed that they undertake management of this road reserve.



Photo ID:

15

Plot:

7

Vegetation Classification or Exclusion Clause

Low threat vegetation (exclusion clause 2.2.3.2(f))

Description / Justification for Classification

Nature strips within the centre of Welshpool Road East reserve has been identified as low threat vegetation as these areas are managed by the relevant authorities, including removal of dead material and regular trimming.



Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



Table 2: AS 3959 Vegetation Classification (refer to Figure 2) (continued)

Photo ID: 16 Plot: 7

Vegetation Classification or Exclusion Clause

Low threat vegetation (exclusion clause 2.2.3.2(f))

Description / Justification for Classification

Vegetation to the north of the site within the southern verge of Welshpool Road has been excluded as low threat vegetation. Some areas of the verge (as shown in Photo 16) were observed to have a build-up of leaf litter, fallen bark and branches. Recent liaison with CoK confirmed they maintain the reserve and that they have scheduled maintenance works to be undertaken in this area in the immediate-term. Ongoing maintenance of this area as low threat vegetation is assumed.



Photo ID:

17

Plot:

7

Vegetation Classification or Exclusion Clause

Low threat vegetation (exclusion clause 2.2.3.2(f))

Description / Justification for Classification

Vegetation to the north of the site within the public open space (POS) have been excluded as these areas as managed by the relevant authorities, including removal of dead material, slashing and irrigation of turf.



Photo ID:

18

Plot:

7

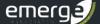
Vegetation Classification or Exclusion Clause

Low threat vegetation (exclusion clause 2.2.3.2(f))

Description / Justification for Classification

Vegetation within the west portion of the site and adjacent west has been excluded as low threat vegetation as these areas are managed by relevant authorities including regular irrigation and removal of low hanging branches.





Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

3.2 Assessment outputs

The vegetation classification undertaken in **Section 3.1** is summarised in Table 2: AS 3959 Vegetation Classification (refer to **Figure 2)Table 2** and incorporates any known or assumed changes to vegetation post-development.

Table 2: Summary of AS3959 vegetation classification and effective slope

Plot	Applied vegetation classification	Effective slope
1	Class A – Forest	Flat/upslope
2	Class A – Forest	Flat/upslope
3	Class A – Forest	Flat/upslope
4	Class C - Shrubland	Flat/upslope
5	Class G – Grassland	Flat/upslope
6	Exclusion 2.2.3.2(e) – Non-vegetated area	N/A
7	Exclusion 2.2.3.2(f) – Low threat vegetation	N/A

The resultant BAL ratings are shown in **Figure 3**. BAL ratings are based on the minimum distances outlined in Table 2.5 of AS 3959 for each applicable combination of vegetation classification and effective slope, as summarised in **Table 3**.

Table 3: Setback distances based on vegetation classification and effective slope and Table 2.5 of AS 3959, as determined by the method 1 BAL assessment

Plot number (see Figure 2)	Vegetation classification (see Figure 2)	Effective slope (Figure 2)	Distance to vegetation (from Table 2.5 of AS 3959)	BAL rating (Figure 3)
Plot 1 to 3	Forest (Class A)	Flat/upslope	< 16 m	BAL-FZ
			16 - < 21 m	BAL-40
			21 - < 31 m	BAL-29
			31 - < 42 m	BAL-19
			42 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
Plot 4	Shrubland (Class C)	Flat/upslope	<7 m	BAL-FZ
			7 - <9 m	BAL-40
			9 - <13 m	BAL-29
			13 - <19 m	BAL-19
			19 - <100 m	BAL-12.5
			> 100 m	BAL-LOW



Lots 4 - 5, 10 – 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

Table 3: Setback distances based on vegetation classification and effective slope and Table 2.5 of AS 3959, as determined by the method 1 BAL assessment (continued)

Plot number (see Figure 2)	Vegetation classification (see Figure 2)	Effective slope (Figure 2)	Distance to vegetation (from Table 2.5 of AS 3959)	BAL rating (Figure 3)
Plot 5	Grassland (Class G)	Flat/upslope	< 6 m	BAL-FZ
			6 - < 8 m	BAL-40
			8 - < 12 m	BAL-29
			12 - < 17 m	BAL-19
			17 - < 50 m	BAL-12.5
			> 50 m	BAL-LOW

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



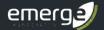
4 Identification of Bushfire Hazard Issues

From a bushfire hazard management perspective, based on the requirements of SPP 3.7 and the Guidelines, the key issues that are likely to require management and/or consideration as part of ongoing operation and any future development within the site include:

- Provision of appropriate separation distance from bushfire hazards to ensure a BAL rating of BAL-29 or less can be achieved at buildings (built form).
- Ensuring that site access is designed, constructed and managed to ensure safe access and egress for fire fighting vehicles and occupants.
- Ensuring that site landscaping is designed, implemented and managed to achieve low threat standards to reduce the risk of fires starting onsite.
- Ensuring that the provision of water for firefighting is sufficient and accessible by firefighting services.

These issues are considered further in **Section 5**.

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



5 Assessment Against the Bushfire Protection Criteria

This BMP provides an outline of the mitigation strategies that will ensure that as subdivision progresses within the site, an acceptable solution can be adopted for each of the bushfire protection criteria detailed within Appendix Four of the Guidelines. The applicable bushfire protection criteria identified in the Guidelines and addressed as part of this BMP are:

- Element 1: Location of the development
- Element 2: Siting and design of the development
- Element 3: Vehicular access
- Element 4: Water supply.

As part of subdivision, it is likely that an 'acceptable solution' will be able to address the intent of all four bushfire protection criteria. A summary of how this can be achieved and an associated compliance statement for each criterion has been provided in Table 4.

Table 4: Assessment against the bushfire protection criteria

Bushfire protection criteria	Proposed bushfire management strategies
Element 1: Loca	tion
A1.1 Development location	The proposed subdivision is located in an area that will achieve BAL-29 or below upon completion. There is a minor incursion of BAL-40 into proposed Lot 2, however the majority of the 4.4 ha lot can achieve BAL-29 and below.
	The proposed subdivision complies with A1.1.
Flomont 2: Sitir	or and decign

Element 2: Siting and design

A2.1 Asset **Protection Zone**

The proposed subdivision provides sufficient area for all lots to achieve an Asset Protection Zone (APZ) with separation equivalent to BAL-29 or below. Proposed lots are to be managed in accordance with Schedule 1 of the Guidelines.

A small portion of the site will be subject to BAL-40 following implementation of the proposed subdivision, within the southern portion of proposed Lot 2. Future industrial development within proposed Lot 2 can be appropriately sited such that any habitable buildings are located in areas subject to BAL-29 or below, through provision of an appropriate APZ. The APZ will be contained within proposed Lot 2 and will be managed in accordance with the Standards for Asset Protection Zones, as outlined in the Guidelines.

The proposed subdivision complies with A2.1.

Element 3: Vehicular access

A3.1 Public roads

As part of the proposed subdivision of the site, Courtney Place will be realigned from its current alignment to facilitate heavy vehicles accessing the site. The realignment will ensure that Courtney Place will meet the minimum standards outlined in Appendix Four of the Guidelines (DPLH & WAPC 2021) and includes a minimum 6 m-wide trafficable surface. The existing Coldwell Road currently complies with the minimum standards as outlined in Appendix Four, with a minimum 8 m-wide road pavement.

The proposed subdivision complies with A3.1.





Table 5: Assessment against the bushfire protection criteria (continued)

Bushfire protection criteria	Proposed bushfire management strategies			
Element 3: Vehicular	Element 3: Vehicular access (continued)			
A3.2a Two access routes.	All proposed subdivided lots have public road frontage via (realigned) Courtney Place or Coldwell Road. These roads connect to the wider public road network via Logistics Boulevard, Welshpool Road East and Grove Road.			
	The public road connections servicing the site are sealed, provides access to and egress from the site in two different directions (to multiple different destinations) and are through-roads.			
	The proposed subdivision is compliant with A3.2			
A3.2b Emergency access way	Not applicable. Given the proposed subdivision layout can achieve A3.2a, emergency access ways are not required.			
A3.3 Through-roads	All proposed and existing public roads servicing the site are through-roads.			
	The proposed subdivision is compliant with A3.3.			
A3.4a Perimeter roads	Not applicable. The proposed subdivision consists of less than 10 adjoining lots within the site. Notwithstanding, Coldwell Road and Welshpool Road East act as an existing perimeter roads providing separation between the site and bushfire hazards.			
A3.4b Fire service access route	No applicable. The proposed lots do not adjoin classified vegetation.			
A3.5 Battle-axe access legs	The subdivision proposes one battle-axe lot, being proposed Lot 7. Lot 7 has frontage to Logistics Boulevard and Welshpool East, however access to the site will be from Courtney Place rather than adding a crossover onto a busy intersection. The battle-axe access leg for this lot is approximately 65 m long and has a variable width of between 6-10 m. As such, the dimensions of the battle-axe leg are sufficient to allow for the minimum design requirements outlined in Column 4, Table 6, Appendix Four of the Guidelines (provided in Plate 4). Future development applications for proposed Lot 7 will need to accommodate these minimum design requirements.			
	The proposed subdivision is compliant with A3.5.			
A3.6 Private driveway longer than 50 metres	A3.6 is not applicable to subdivision applications. Notwithstanding, any future development applications within the site will need to address the requirements of A3.6. The proposed subdivision layout is sufficient to enable future development to achieve the requirements of A3.6 in relation to private driveway design, passing bays and turn-around areas.			
Element 4: Water				
A4.1 Identification of future water supply	Not applicable.			
A4.2 Provision of water for fire fighting purposes	The site is located within an existing urban area and will be connected to a reticulated water supply, noting that existing hydrant infrastructure is located along Courtney Place and Coldwell Road to the east. The requirement for additional hydrants within the site will be determined as part of detailed design.			
	The proposed subdivision is compliant with A4.2.			

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

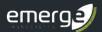


Table 6: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public roads	2 Emergency access way ¹	3 Fire service access route ¹	4 Battle-axe and private driveways²	
Minimum trafficable surface (metres)	In accordance with A3.1	6	6	4	
Minimum horizontal clearance (metres)	N/A	6	6	6	
Minimum vertical clearance (metres)		4	.5		
Minimum weight capacity (tonnes)	15				
Maximum grade unsealed road ³	7077.07		1:10 (10%)		
Maximum grade sealed road ³	As outlined in the IPWEA		1:7 (14.3%)		
Maximum average grade sealed road	Subdivision Guidelines 1:10 (10%) 8.5				
Minimum inner radius of road curves (metres)			- 1		

Notes:

Plate 4: Excerpt of Table 6 from Appendix Four of the Guidelines

5.1 Additional management strategies

5.1.1 Future approval considerations

The BAL assessment is a conservative and cautious assessment of the potential bushfire risk posed to future habitable buildings within the site based on the proposed management of vegetation and assumptions outlined in **Section 3**.

Certification by a bushfire consultant will be required as part of subdivision approval to confirm that all developer responsibilities related to bushfire hazards have been implemented, prior to the issue of titles.

It is anticipated that individual development applications and/or building licence applications will be progressed within each lot following the creation of lot titles. This BMP and the predicted BAL ratings may be suitable to support these processes, if the assumptions of the BMP remain appropriate and applicable.

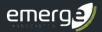
Future industrial development within the site is unlikely to include any Class 1, 2, 3 or 10a buildings, which means that future buildings are unlikely to be required to be constructed to an increased building standard in accordance with AS 3939. Notwithstanding, the BAL Contour Plan demonstrates that the site is suitably sized to ensure future habitable buildings within the site will not be exposed to a BAL rating exceeding BAL-29.

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.

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



5.1.2 Landscape management

5.1.2.1 Within the site

All lots are required to be managed to a low threat condition in accordance with the APZ requirements in Schedule 1 of the Guidelines. Detailed design and placement of future buildings within the proposed lots is currently unknown. However, the future development of lots may include landscaped gardens which will be managed to a low threat standard following AS 3959 and the City of Kalamunda Fire Hazard Reduction Notice. Management of these areas may include:

- Clearing of vegetation.
- Irrigation of grass and garden beds (where required).
- Regular maintenance including removal of weeds and dead material.
- Low pruning of trees (branches below 2 m in height removed where appropriate).
- Application of ground covers such as mulch or non-flammable materials.
- Regularly mowing/slashing of grass to less than 100mm in height.

The lot owner will be responsible in perpetuity for the ongoing management of these areas.

5.1.2.2 Surrounding the site

Within existing private landholdings

Where indicated as a low threat in **Figure 3**, it is assumed that the private landholdings surrounding the site will be managed by the applicable landowners and/or management authority in accordance with existing maintenance regimes or the City of Kalamunda Hazard Reduction Notice (as published).

Existing POS and road reserves

The existing road reserves and areas of POS currently maintained to a low threat standard in accordance with Section 2.2.3.2 of AS 3959, are assumed to continue to be maintained as such in line with existing maintenance regimes, exclusions and/or City of Kalamunda requirements.

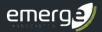
5.1.3 City of Kalamunda Fire Hazard Reduction Notice

The City of Kalamunda releases a Fire Hazard Reduction Notice on an annual basis to provide a framework for bushfire management within the City. The City of Kalamunda can enforce this notice under Section 33 of the *Bush Fires Act 1954*. Also, Section 33 1(b) provides the City with additional power to direct landowners to undertake works to remedy conditions conducive to the outbreak or spread of bushfire. Compliance with the Fire Hazard Reduction Notice is likely to include (but is not limited to):

- Maintenance of appropriate asset protection zones around buildings and fixed assets within a landholding.
- Maintenance of fuel loads (i.e. grass less than 50 mm in height)
- Particular standards for fire breaks, driveways and access ways, including the location of the firebreak, 3 m-wide horizontal and 4 m-wide vertical clearances and trafficable surface standards.

The City of Kalamunda Hazard Reduction Notice should be referred to for further detail.

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



5.1.4 Vulnerable or high-risk land uses

Future industrial land uses to be developed within the site (following the subdivision process) may potentially include 'high-risk land use' as defined in SPP 3.7 and the Guidelines. However, no vulnerable or high-risk land uses are currently known to be proposed to be developed within the site in the future.

SPP 3.7 policy measure 6.6 requires any subdivision applications which may result in the introduction of high-risk land uses within areas subject to a BAL rating of BAL-12.5 or higher to be supported by a BMP. If vulnerable or high-risk land uses are proposed in the future within subdivided lots, then SPP 3.7 policy measures 6.6 outlines that any development application for such land uses should include an emergency evacuation plan for proposed occupants and/or a risk management plan for any flammable on-site hazards.

If a high-risk land use is proposed to be developed within future lots subject to a BAL rating of BAL-12.5 or higher, then the associated development application (and associated bushfire management documentation) will be required to demonstrate they can contain the hazard on site, to not increase the threat of a bushfire occurring to its neighbours, and reducing its vulnerability to a bushfire arriving /affecting the site.

The proposed lots are large and there is sufficient area available within the proposed lots to enable the appropriate location of flammable materials to reduce the chance of ignition, should these be proposed. The land is located within the urban area with a compliant access that would facilitate the attendance of emergency services and it has access to a reticulated water supply to assist fire suppression. It is therefore well positioned for a quick response and fire suppression.

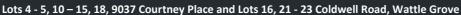
5.1.5 Public education and preparedness

Community bushfire safety is a shared responsibility between individuals, the community, government and fire agencies. DFES has an extensive Community Bushfire Education Program including a range of publications, a website and Bushfire Ready Groups. The DFES publication 'Prepare. Act. Survive.' (DFES 2014) provides advice on preparing for and surviving the bushfire season. Other downloadable brochures are available from

http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/pages/publications.aspx

The City of Kalamunda provides bushfire safety advice to landowners available from their website https://www.kalamunda.wa.gov.au/residents/prepare/are-you-ready. Professional, qualified consultants also offer bushfire safety advice and relevant services to residents and businesses in high risk areas besides that that provided in this BMP.

In the case of a bushfire in the area, advice would be provided to site users by DFES, the Department of Biodiversity, Conservation and Attractions (DBCA) and/or the City of Kalamunda on any specific recommendations with regard to responding to the bushfire, including evacuation if required. It is highly recommended that future operators within the site makes themselves aware of their responsibilities with regard to preparing for and responding to a potential bushfire that may impact upon them or those under their care.





6 Responsibilities for Implementation and Management of Bushfire Measures

Table 5 outlines the developer responsibilities to be undertaken prior to clearance of titles. These items will be certified by a bushfire consultant prior to clearance.

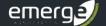
Table 6 outlines the future responsibilities of the proponent (developer), future landowners and the City of Kalamunda associated with implementing this BMP with reference to ongoing bushfire risk mitigation measures for existing land uses (through compliance with the City of Kalamunda Fire Hazard Reduction Notice) or future mitigation measures to be accommodated as part of the development process but not necessary for title clearances. These responsibilities will need to be considered as part of the subsequent development and implementation process.

Table 5: Responsibilities for the implementation of this BMP prior to issue of titles

Propo	nent – Prior to Issue of Certificates of Title for New Lots
No.	Implementation action
1	Provide a copy of this BMP to the relevant decision makers to support approval of the proposed subdivision.
2	Remove all classified vegetation from the site. If development is staged, ensure that developed lots can achieve BAL-29 or below at all times.
3	For each new lot created within areas exposed to a BAL rating exceeding BAL-LOW, lodge a Section 165 Notification on the Certificate of Title to alert purchasers and successors in title of the existence of the overarching BMP and the requirements associated with meeting AS 3959 construction standards, if required as a condition of subdivision.
4	Install the public roads to the standards outlined in Appendix Four of the Guidelines (DPLH & WAPC 2021) or as agreed with the City of Kalamunda. Public roads reserves should be designed and maintained to achieve low threat in accordance with Section 2.2.3.2 of AS 3959. If development is staged, ensure that all lots have two access routes available at all times.
5	Reticulated water supply and hydrants are to be installed as per standard Water Corporation requirements, unless otherwise agreed.

Table 6: Responsibilities for the implementation of this BMP during development and ongoing management

Propo	Proponent – Prior to Sale or Occupancy		
No.	Implementation and Management actions		
1	Make a copy of the BMP and BAL certification/assessment available to each lot owner within designated bushfire prone areas.		
2	Maintain lot/s in a minimal fuel condition through adherence to the APZ standards in Schedule 1 of the Guidelines.		

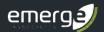


Lots 4 - 5, 10 – 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

Table 6: Responsibilities for the implementation of this BMP during development and ongoing management (continued)

City of Kalamunda			
No.	Management action		
1	Providing fire prevention and preparedness advice to landowners upon request, including the <i>Homeowners Bush Fire Survival Manual: Prepare, Act, Survive</i> (or similar suitable documentation) and the latest City of Kalamunda Fire Hazard Reduction Notice.		
2	Maintaining public road reserves under their management to appropriate standards, where required/applicable.		
3	Organise the clean-up of the southern road verge of Welshpool Road East, adjacent directly north of the site. In particular, the build up of leaf-litter, fallen branches and any fallen trees. Maintain to a low-threat standard and ensure regular maintenance as required.		
4	Monitoring vegetation fuel loads in public reserves (and private landholdings) and liaising with relevant stakeholders to maintain fuel loads at appropriate fuel levels, where required/ applicable.		
5	Monitoring compliance with the City of Kalamunda Fire Hazard Reduction Notice and enforcing requirements as required.		
Property owner/occupier			
No.	Management action		
1	Maintain lot in a minimal fuel condition through adherence to the APZ standards in Schedule 1 of the Guidelines.		
2	Ensuring fire hydrants are accessible at all times.		
3	Any proposal to develop a high-risk land use (as per the definition provided in SPP 3.7 and the Guidelines) in an area subject to a BAL rating of BAL-12.5 or greater, should address the requirements of SPP 3.7 for 'high-risk' development and policy measure 6.6 through the preparation of a BMP and/or risk management plan.		
Water Corporation			
No.	Management action		
1	The Water Corporation is responsible for the ongoing maintenance and repair of water hydrants.		

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove



7 Applicant Declaration

7.1 Accreditation

This assessment report has been prepared by Emerge Associates who have a number of team members who have undertaken Bushfire Planning and Design (BPAD) Level 1 and Level 2 training and are Fire Protection Association of Australia (FPAA) accredited practitioners. Emerge Associates have been providing bushfire risk management advice for more than 10 years, undertaking detailed bushfire assessments (and associated approvals) to support the land use development industry.

Dana Elphinstone is a FPAA Level 2 BPAD accredited practitioner (BPAD No. 52565) and is also accredited as a Bushfire Hazard Practitioner in Tasmania (BFP-146), with over seven years' experience.

7.2 Declaration

I declare that the information provided is true and correct to the best of my knowledge.

Signature:

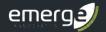
Name: Dana Elphinstone

Company: Emerge Associates

Dana (

Date: 19 July 2022

BPAD Accreditation: Level 2 BPAD no. 52565



8 References

8.1 General references

The references listed below have been considered as part of preparing this document.

Department of Fire and Emergency Services (DFES) 2014, *Prepare. Act. Survive.*, Perth. August 2014.

Department of Planning, Lands and Heritage, and Western Australian Planning Commission, (DPLH & WAPC) 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4*, Perth, Western Australia.

Department of Water and Environmental Regulation (DWER) 2021, *Water Register*, Perth, https://maps.water.wa.gov.au/#/webmap/register>.

Emerge Associates 2021a, Reconnaissance Flora and Vegetation Assessment - Lots 4 - 5, 10 - 12, 14 - 15 Courtney Place and Lots 21 - 23 Coldwell Road, Wattle Grove, EP20-157(02)--002 SCM, Version 1.

Emerge Associates 2021b, Basic Fauna and Targeted Black Cockatoo Assessment - Lots 4 - 5, 10 - 12, 14 - 15 Courtney Place and Lots 21 - 23 Coldwell Road, Wattle Grove, Version 1.

Gould, J., McCaw, W., Cheney, N., Ellis, P. and Matthews, S. 2007, Field Guide: Fuel Assessment and Fire Behaviour Prediction in Dry Eucalypt Forest, CSIRO and Department of Environment and Conservation, Perth, Western Australia.

Office of Bushfire Risk Management (OBRM) 2021, *Map of Bush Fire Prone Areas*, Landgate, https://maps.slip.wa.gov.au/landgate/bushfireprone/.

Standards Australia 2018, AS 3959:2018 Construction of buildings in bushfire-prone areas, Sydney.

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

8.2 Online references

The online resources that have been utilised in the preparation of this report are referenced in **Section 8.1**, with access date information provided in **Table R-1**.

Table R 1 Access dates for online references

Reference	Date accessed	Website or dataset name
(DWER 2021)	28 June 2022	Map for Bush Fire Prone Areas

Figures

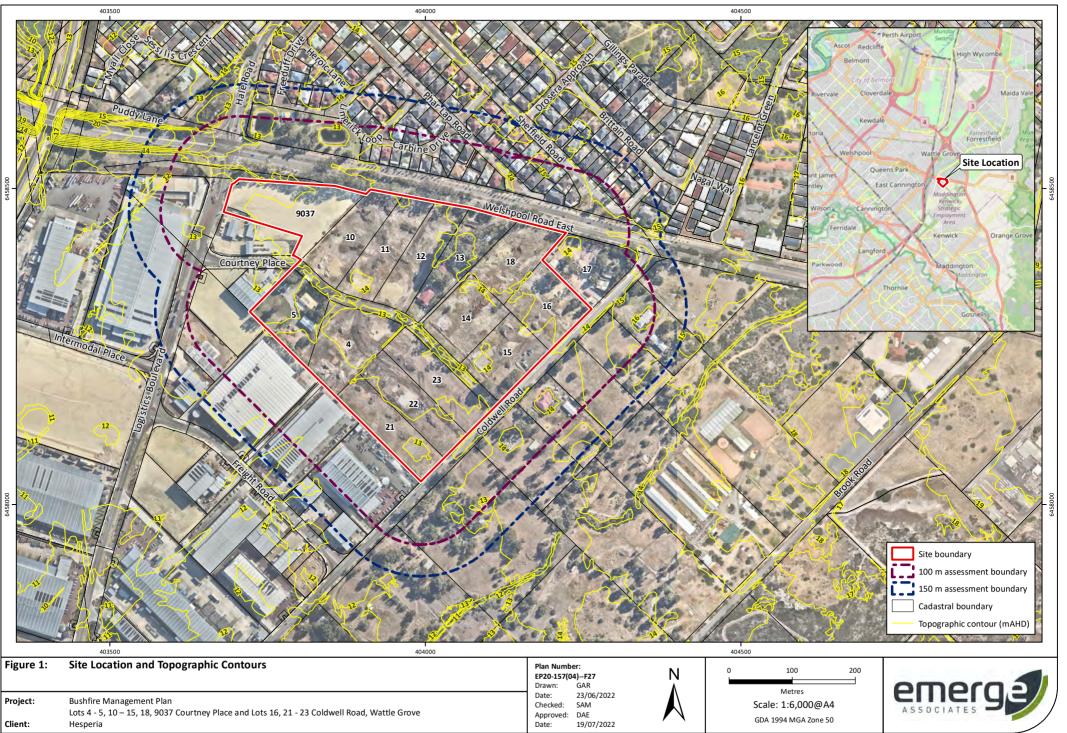


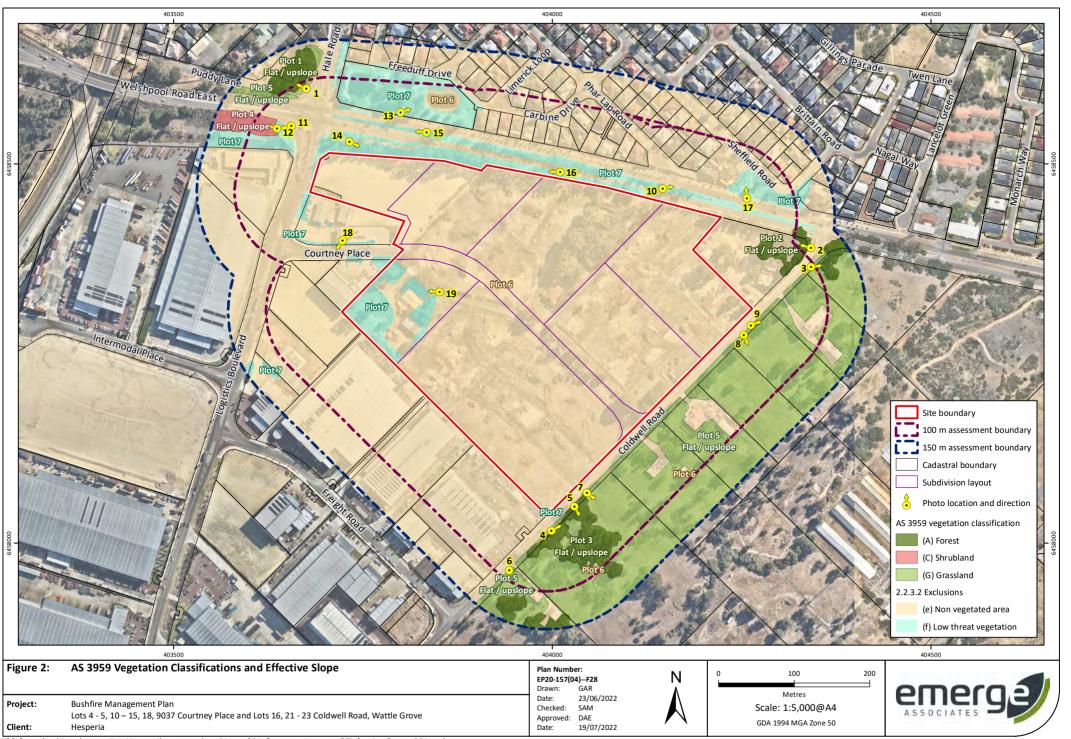
Figure 1: Site Location and Topographic Contours

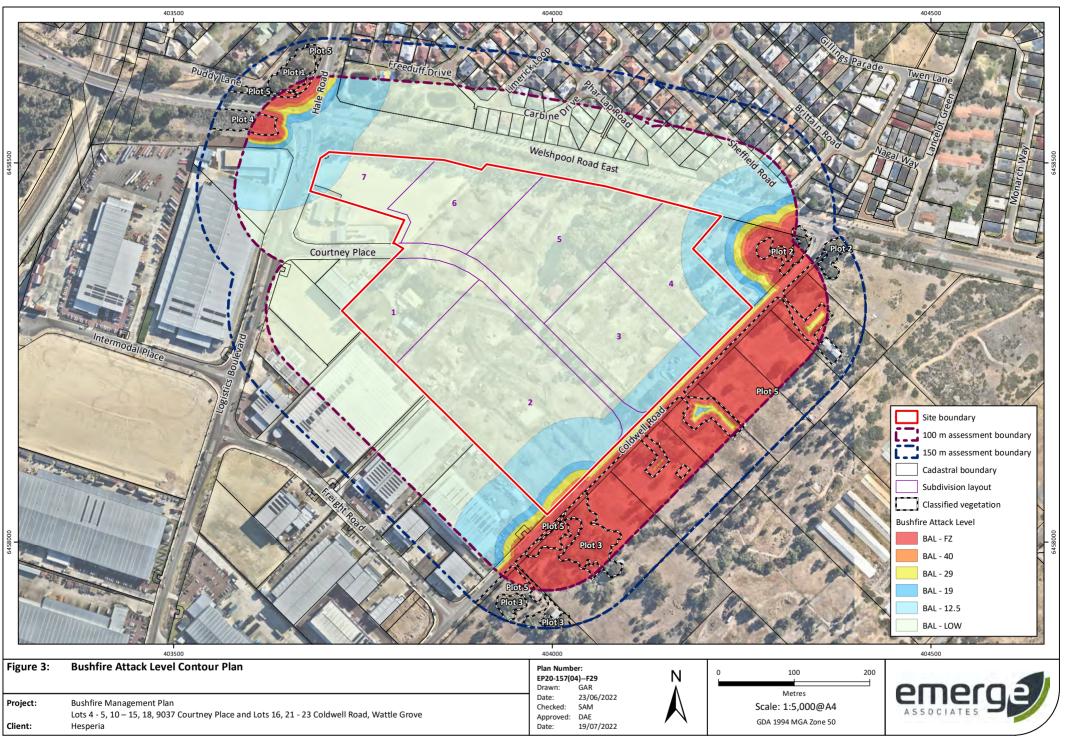
Figure 2: AS 3959 Vegetation Classifications and Effective Slope

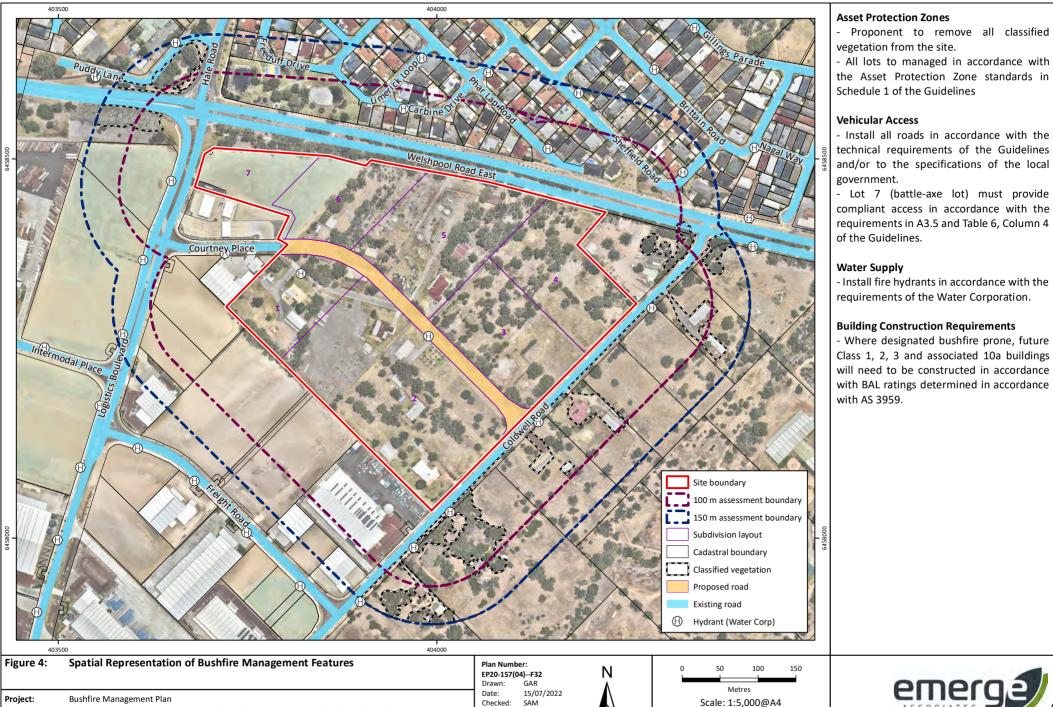
Figure 3: Bushfire Attack Level Contour Plan

Figure 4: Spatial Representation of Bushfire Management Strategies









Approved: DAE

19/07/2022

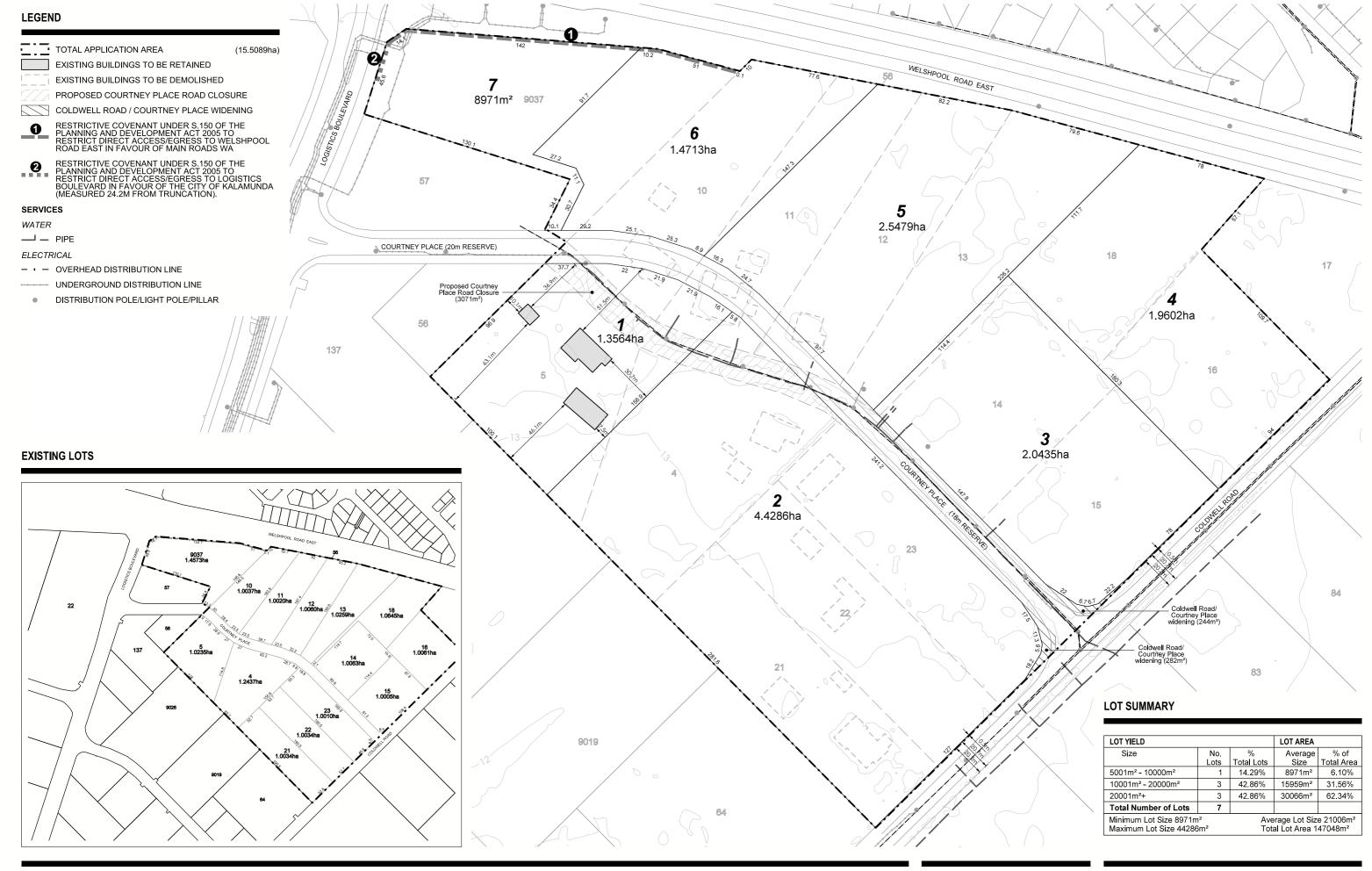
GDA 1994 MGA Zone 50

Lots 4 - 5, 10 - 15, 18, 9037 Courtney Place and Lots 16, 21 - 23 Coldwell Road, Wattle Grove

Appendix A

Plan of Subdivision (TBB 2022)





Plan of Subdivision - Freehold

MADDINGTON - KENWICK STRATEGIC EMPLOYMENT AREA - PRECINCT 3A

Taylor Burrell Barnett Town Planning & Design Level 7, 160 St Georges Terrace, Perth WA 6000 e: admin@tbbplanning.com.au p: (08) 9226 4276

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LOW VERGE PLANTING (IRRIGATED)



Banksia ashbyi



Banksia blechnifolia



Conostylis candicans*



Grevillea lanigera



Hibbertia scandens



Lechenaultia formosa



Thryptomene saxicola

GENERAL PLANTING (ON LOT - IRRIGATED)



Anigozanthos sp



Callistemon Little John



Chorizema cordatum



Darwinia citriodora



Grevillea preisii



Melaleuca huegelii

*Cats Paw for swale planting

BUFFER PLANTING (IRRIGATED)



Alyogyne huegelii



Riconicarpus tuberculatus

• Plants above have been selected from the Shire of Kalamunda Recommended PLant List (website)

PLANTING NOTES:

- THE GENERAL PLANTING AREAS TO INCLUDE SPECIES FROM THE LOW VERGE PLANTING MIX
- ALL TREE LOCATIONS SUBJECT TO SERVICE LOCATION REVIEW
- SOIL AMENDMENTS REQUIRED TO DRAINAGE BASIN AND SWALE AREAS. AMENDMENTS AS OUTLINED IN THE UWMP
- SOIL CONDITIONER REQUIRED TO ALL OTHER PLANTING AREAS
- PINE BARK MULCH TO ALL PLANTING AREAS (EXCEPT DRAINAGE)
- GRAVEL MULCH TO DRAINAGE BASIN BASE AND SWALE BASE
- A MINIMUM OF 4 TREES PER CARBAY HAS BEEN ALLOWED FOR ON LOT.

IRRIGATION NOTES:

- IRRIGATION TO ALL LANDSCAPE AREAS, EXCEPT THE DRAINAGE BASIN.
- DRAINAGE BASIN TO BE UNIRRIGATED AND PLANTED DURING EARLY WINTER
- USE OF POP UP FLOOD BUBBLERS TO SUIT SIZE OF GARDEN BEDS TO ENSURE ANY OVER-SPRAY AND WASTAGE IS MITIGATED
- IRRIGATION TO CONNECT TO BUILDING SCHEME WATER CONNECTION WITH CONTROLLER ETC. TO BE LOCATED IN AN AGREED LOCATION

GENERAL NOTES:

- CROSSOVERS AND FENCING REFER CIVIL DRAWINGS AND SPECIFICATION
- INTERSECTION WORKS (CIVIL) REFER TO CIVIL DRAWINGS FOR THE WIDENING OF COLDWELL ROAD AND ASSOCIATED CIVIL WORKS

DRAINAGE BASIN / SWALE PLANTING (WINTER PLANTING)



Baumea juncea



Carex apressa



Juncus pallidus



Lepidosperma gladiatum Poa poiformis*



C1.101



Patersonia occidentalis*



Orthrosanthus laxus*

- Swale/basin planting have been selected from the Vegetation Guidelines for stormwater biofilters in South-West of Western Australia.
- Species indicated with a * to be used in the verge swale gardens as they generally grow to be under 700mm height

ROE HWY LOGISTICS PARK



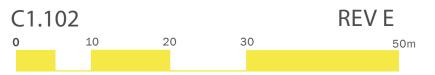


Drainage basin to be unirrigated and

LANDSCAPE CONCEPT PLAN JOB NO. 2211001 C1.102 OCTOBER 2022 1:500 @ A1

Perimeter drainage swale (unirrigated and

Verge planting to be species under 700mm



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to include furniture - a combination of tables, seats and benches. MAIN OFFICE 1 COLDWELL ROAD OFFICE 01 PLAN Street trees to be evenly spaced along Coldwell Road, with low verge

Outdoor staff areas

WAREHOUSE OFFICE 02 OFFICE 01 COLDWELL ROAD KEY PLAN

LEGEND

- LOW VERGE PLANTING (140mm pots @ 3/sq.m) Irrigated, native planting with pine bark mulch
- BUFFER PLANTING (140mm pots @ 3/sq.m) Irrigated planting with pine bark mulch, to provide height and visual buffer against building
- BASIN / SWALE PLANTING (tubestock @ 4/sq.m) Nutrient stripping tubestock planting to drainage basin. Planting to occur in winter (not irrigated). Gravel mulch to base of basin. Refer UWMP for soil improvement requirements
- VERGE SWALE PLANTING (tubestock @ 4/sq.m) Nutrient stripping tubestock planting to verge swales. Planting to occur in winter (not irrigated). Gravel mulch to base of basin. Refer UWMP for soil improvement requirements
- GENERAL PLANTING ON LOT (140mm @ 3/sq.m) Irrigated, native planting with pine bark mulch
- TREE WELLS TO CARBAYS Irrigated trees to carbays. Tree wells to be to Shire of Kalumunda requirements
- GENERAL PAVING Robust insitu concrete paving to provide pedestrian connections on lot to entry points and street footpath
- FEATURE PAVING Robust insitu concrete paving to compliment architecture and highlight key entry points
- **GRAVEL ONLY** 100mm gravel only to pump station and transformer sites

STREET TREE 100/200L Irrigated

TREES ON LOT 100/200L Irrigated

CARPARK TREES 50L Irrigated

SWALE / BASIN TREES 45L Not irrigated (winter planting)

STREET TREE (COLDWELL + COURTNEY)



Angophora costata -Selected to tie into the proposed street trees along Coldwell Road (other side of Courtney Place)

FEATURE TREES (ON LOT)



Corymbia ficifolia

CARPARK TREES

Corymbia ficifolia

DRAINAGE BASIN TREES

Melaleuca rhaphiophylla



Eucalyptus erythrycorys Banksia grandis







Eucalyptus rudis



Melalecua lancelota

FURNITURE



Variety of seating opportunities to be provided within the outdoor staff area. Selection to be robust powdercoated frames with hardwood slats.

ROE HWY LOGISTICS PARK

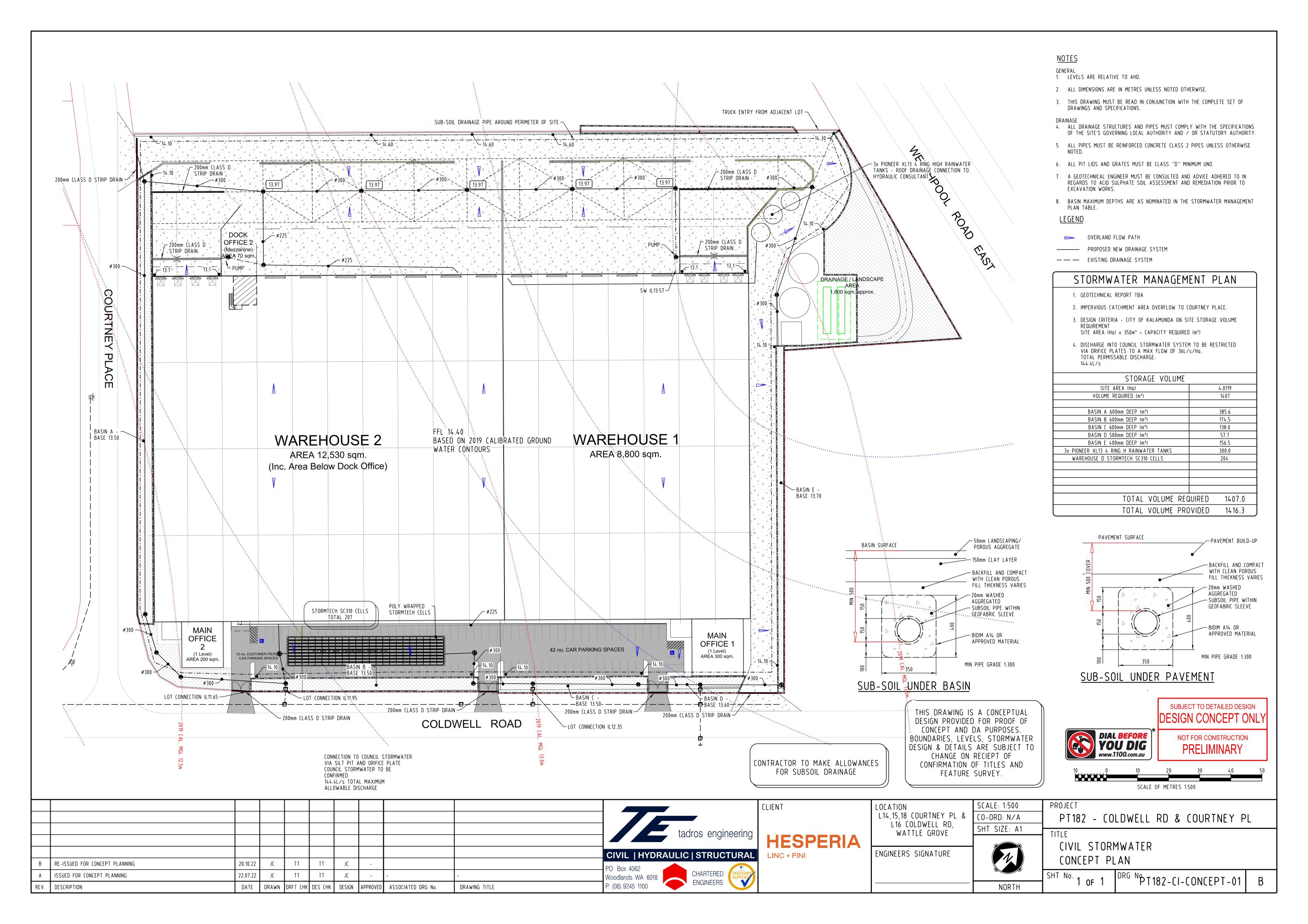


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planting to ensure sight lines are

maintained

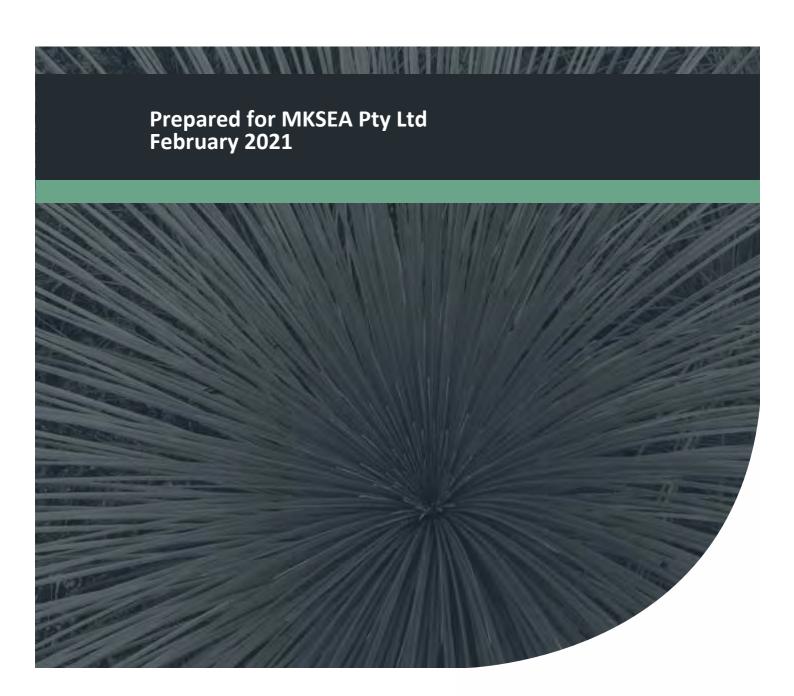


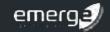


Site and Soil Evaluation

Stage 4, Precinct 3C MKSEA

Project No: EP17-023(18)



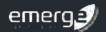


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Integrated Science & Design



Executive Summary

Hesperia are progressing with Precinct 3C of the Maddington-Kenwick Strategic Employment Area (MKSEA), which is a major industrial development. The MKSEA has strategic planning significance at a State level, as identified in the Western Australian Planning Commission's (WAPC) *Economic and Employment Land Strategy* (EELS) as an important 'Non-Heavy Industrial' development area.

This report pertains to Stage 4 of the MKSEA planning Precinct 3C (Lots 4-5, 10-15 and 18 Courtney Place, and Lots 16-17 and 21-23 Coldwell Road Wattle Grove), which are a total of 15 ha in size and are herein referred to as 'the site'. The site is located within the City of Kalamunda (CoK). The proposed subdivision plan for the site allows for the creation of 14 Lots, ranging from 2,101 m² to 14,622 m², and will host major transport, storage and logistics operation land uses.

Connection to the deep sewer network is not available, and therefore the site is proposed to be serviced by on-site effluence disposal. The land uses at the site will be 'dry industry' land uses which do not generate large volumes of wastewater, and very limited to no trade waste.

This document is intended to satisfy the requirements of the *Government Sewerage Policy* (DPLH 2019) which requires the preparation of a site and soil evaluation (SSE) should a site not be connected to a reticulated sewage network. The SSE is intended to guide and assess on-site wastewater disposal to ensure sustainable and effective wastewater management, thereby protecting public health and the environment.

In summary, the key points and considerations outlined in this SSE include:

- All proposed industrial lots are large, ranging from 2,101 m² to 14,622 m² (average of 7, 312 m²) and will be 'dry industry'.
- Geotechnical and groundwater investigations undertaken show that soils beneath the site are
 variable (sand, sandy loams, loamy sands, sandy clays to clayey sands) but generally underlain by
 low permeability clays at shallow depths and seasonally perched groundwater is known to occur.
- The use of imported fill during the subdivision and development process is proposed across the entire site to meet various civil design requirements, and will ensure adequate separation to the maximum groundwater level (MGL) of at least 1.5 m beneath effluent disposal areas.
- The nearest area of wetland with environmental values (i.e. either Conservation Category or Resource Enhancement management category) is at least 190 m from the site, and is also hydrologically up-gradient (from groundwater flow direction). The nearest semi-natural watercourse, the Yule Brook, is approximately 200 m away, however groundwater does not flow from the site towards Yule Brook. These hydrological features are sufficiently disconnected and of sufficient distance away to ensure that impacts would be negligible.
- The stormwater management approach for the site will be outlined in a future urban water management plan (UWMP), and due to the fill imported into the large lot sizes and drainage design criteria, will provide adequate distance (minimum 300 mm) between the 10% annual exceedance probability (AEP) top water level of any stormwater management conveyance assets and the finished lot levels where on-site effluent disposal systems could potentially be located.



Due to the relevant environmental characteristics of the site, nutrient retentive secondary treatment systems (i.e. Aerobic Treatment Units (ATUs)) are proposed within all lots, and these will dispose of effluent via flatbed leach drains. This high level of sewerage treatment and the disposal method in conjunction with ongoing maintenance and management of the systems (through commercial land management arrangements) will mean that there is no risk of human exposure to untreated or inadequately treated sewerage, and that risk to downstream environments is mitigated. The provision of secondary treatment systems can be accommodated as part of the subdivision and subsequent development approval processes for individual lots/facilities.

In summary, the outcome from the detailed review undertaken in this SSE concludes:

- There is sufficient information regarding the proposed development itself and the physical characteristics of the development area available to justify/support the consideration of the proposed wastewater servicing approach.
- There are no technical limitations or environmental constraints that would prevent the use of secondary treatment systems to service the proposed development.
- As part of the site development process, the site will be modified such that it will be physically suitable to accommodate onsite sewage treatment and disposal, inclusive of sufficient area for treated wastewater disposal.
- There will be no risk to human health or the environment that would arise from the use of secondary treatment systems proposed.

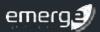
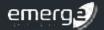


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Appendix A

Subdivision Plan

Appendix B

Geotechnical report/Test pit logs

Appendix C

Pre-development 1% AEP model extract

Appendix D

Groundwater monitoring data

Appendix E

Earthworks design

Appendix F

MKSEA Precinct 3A Stage 1-3 UWMP Extract - Stormwater Management Plan



1 Introduction

1.1 Project background

Hesperia (previously Linc Property Group) are progressing a major industrial development situated within the Maddington-Kenwick Strategic Employment Area (MKSEA), which is located approximately 15 km south-east of Perth, within the City of Gosnells (CoG) and City of Kalamunda (CoK).

This report pertains to Stage 4 of MKSEA Precinct 3C (Lots 4-5, 10-15 and 18 Courtney Place, and Lots 16-17 and 21-23 Codwell Road Wattle Grove), which are a total of 15 ha and are herein referred to as 'the site'. The proposed subdivision plan for the site is provided in **Appendix A** and allows for the creation of 14 Lots, ranging from 2,101 m² to 14,622 m².

The site is located within the CoK. The Lots are bound by Welshpool Road towards the north, Coldwell Road towards the east, and existing rural and industrial land towards the south and west. Courtney Place runs through the site from the north western boundary to the south east.

The location and extent of the site, Precinct 3C and the MKSEA boundary are shown in **Figure 1**. The lot boundaries are shown in **Figure 2**.

1.2 Town planning context

The site has been rezoned from rural to industrial under the *Metropolitan Region Scheme* (MRS). Under the CoK *Town Planning Scheme 3* (City of Kalamunda 2017), the northern portion of the site is zoned 'Light Industrial' and the southern portion is zoned 'General Industrial', Courtney Place being the separation between north and south.

1.3 Purpose of this report

The proponent has substantially investigated servicing the proposed industrial development with conventional reticulated sewer, which involved close liaison with the Water Corporation. The investigation indicated major financial, physical and environmental limitations with the provision of a reticulated sewer network to the Precinct 3 of MKSEA. If reticulated sewer is mandated through the planning approvals process, Hesperia has advised that the proposed development is not feasible and is unlikely to progress.

The Government Sewerage Policy (DPLH 2019) (herein referred to as 'the Policy') mandates that should developments not be connected to reticulated sewer, a site and soil evaluation (SSE) in accordance with Australian/New Zealand Standard, AS/NZS 1547 On-site domestic wastewater management (AS/NZS 1547) (Standards Australia and Standards New Zealand 2012) is required. The SSE is intended to assess and guide on-site wastewater disposal to ensure sustainable and effective on-site wastewater management, thereby protecting public health and the environment.



To support subdivision, the SSE should determine the capacity of proposed lots to contain sewage on-site, select and size the treatment/on-site sewage management system (including land application areas) in conjunction with the Department of Health (DoH) approved systems, and identify management and monitoring requirements of the system.

1.4 Proposed development

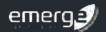
The MKSEA has been identified as a future industrial area since the late 1990s and has strategic planning significance at a State level, being identified in the WAPC's Economic and Employment Land Strategy: Non-Heavy Industrial, as an important future industrial area. Its location at the intersection of major transport and freight routes and adjacent to the existing Welshpool and Perth Airport industrial areas make it an ideal location for logistics and freight based industrial activities, which generally require larger lot sizes and demand efficient access to the metropolitan arterial freight transport network.

The proposed industrial land uses (including major transport, storage and logistics operations) will be representative of 'dry industry' land uses which do not generate large volumes of wastewater, and very limited or no trade waste. Wastewater would be generated by worker ablutions and amenities, and in this regard, it is expected that wastewater flows would be in the order of 70 L/day per employee showering onsite, or 35 L/day per employee if not showering (further discussed in **Section 4.1**). The entire site is also proposed to be filled with approximately 1.5 m of sand, to allow for adequate clearance to groundwater, effective conveyance of stormwater, vertical separation from stormwater conveyance and to provide appropriate geotechnical classification (discussed further in **Section 3.2**).

1.5 Previous and supporting documentation

1.5.1 Local Water Management Strategy (Precinct 3A)

A MKSEA - Precinct 3A, Local Water Management Strategy (LWMS) was prepared by Emerge Associates (2017) to support structure planning for a previous boundary of Precinct 3A. Precinct boundaries have since changed, although this LWMS included the site. The water management approach outlined in this LWMS (including post-development stormwater modelling for the entire Precinct 3) has since been updated to accommodate changes in design. These updates are discussed further in successive reports (discussed in **Section 1.5.2**).



1.5.2 Urban Water Management Plan (Stages 1-3 Precinct 3A)

The Roe Highway Logistics Park – MKSEA Precinct 3A Stages 1-3 Urban Water Management Plan (UWMP) was prepared by Emerge Associates (2019) to support the subdivision of a discrete area within Precinct 3A (located directly south west of the site as shown in **Figure 1**).

The UWMP details the water management strategy for Stages 1-3 of Precinct 3A and was prepared to demonstrate compliance with the overarching LWMS and *Better Urban Water Management* (BUWM) (WAPC 2008). The UWMP describes the management of water servicing, stormwater and groundwater, and proposes that wastewater within Precinct 3A be serviced with the use of Aerobic Treatment Units (ATUs).

The stormwater approach for the UWMP proposed that lots detain flows, up to the 1% annual exceedance probability (AEP) rainfall event, within a lot detention area (LDA). Runoff from the road network (including Courtney road) was proposed to flow south-east and discharge into a treatment swale along Coldwell road, and eventually a flood storage area (FSA) located on Lot 23, which would be sized to detain the 1% AEP event.

1.5.3 On-site Effluent Disposal Support

In 2017 Emerge Associates prepared a summary of relevant considerations for on-site effluent disposal on behalf of Linc Property Group (now Hesperia) in the form of a report to support planning approvals being sought from the Department of Planning (now the Department of Planning, Lands and Heritage (DPLH)) and the Western Australian Planning Commission (WAPC) for Precinct 3A.

In summary, the report detailed the following;

- Conventional reticulated sewer network was investigated, via close liaison with the Water Corporation. The findings outlined the challenges and constraints, including major financial/feasibility, and physical/environmental limitations.
- On-site effluent disposal was investigated, and a wastewater treatment and disposal solution was proposed via consultation with Aquarius Wastewater Systems (AWS).
- DoH approved ATUs with 'nutrient retentive systems' were proposed.
- Treated wastewater was proposed to be disposed of via flatbed leach drains (see Plate 1), or
 where possible (and subject to the appropriate approvals) reticulation back into buildings for
 toilet flushing and other appropriate non-potable uses.
- The planning and delivery of on-site effluent disposal was considered, including analysis of the environmental and human health impacts.
- A summary was provided to address the minimum requirements under the *Draft Government Sewage Policy* (since updated to the *Policy*).
- Indicative land area requirements for disposal within lots was determined, and these ranged from 136 m² to 1,004 m².



2 Existing Environment

2.1 Current and historical land uses

A review of historic aerial photography indicates that the site has been predominately used for rural lifestyle and small-scale agricultural land uses, although recently some areas have been subject to other light industrial uses. The majority of the site was cleared of remnant vegetation circa 1985.

Numerous existing dwellings (mainly rural-residential properties) are observed across the site and are currently serviced by septic systems.

2.2 Geotechnical conditions

2.2.1 Topography

Topographic contours across the MKSEA were provided by the Department of Water (now the Department of Water and Environmental Regulation (DWER)) in 2015. The site has generally low relief, with elevation ranging from 15 m Australian height datum (mAHD) in the north east to 12.4 mAHD in the south (DoW 2015). Topographical contours are shown in **Figure 3**.

2.2.2 Regional geology

Regional geology mapping across the site displays two soil units which separate the site into a western and eastern portion. The soil units are described as (Gozzard 1986):

- Western portion of the site Clayey sand (Sc): silty in part, pale grey-brown, medium to coarse, poorly sorted, sub-angular to rounded, frequent heavy minerals, rare feldspar, of alluvial origin.
- Eastern portion of the site Sand (S10): as S8 (Sand very light grey at surface, yellow at depth, fine to medium sub-rounded quartz, moderately sorted) over sandy clay to clayey sand of the Guildford Formation, of eolian origin.

Regional geology is presented in Figure 4.

2.2.3 Local geology and soils

Geotechnical investigations were undertaken by Douglas Partners (2016, 2021) within Lots 4, 14, 15 and 16 within the site, and within adjacent land. Soils were found to be similar to regionally mapping, in that the western portion was found to have clayey sand and the eastern portion was found to have sandy clay. **Table 1** presents the laboratory results from three test pits (6, 9 and 11), and their proposed soil category and classification. Test pits within and in close proximity to the site are shown in **Figure 4**. In summary, the investigations found:

- Topsoil underlying the site is comprised of fill, sand and gravely sand up to 0.5 m below ground level (mBGL).
- Superficial levels of topsoil fill at test pits 5 and 10 were also found to have construction waste (bricks, tiles, glass, PVC plastic, concrete, etc.).



Underlying the topsoil (> 0.45 mBGL) is clayey sands/sandy clays and gravelly materials (fine
grained to coarse, yellow brown to red-brown, low to medium plasticity) up to 2.5 mBGL (test pit
termination).

A geotechnical investigation was also undertaken by GGC (2019) on Lots 14 and 15. Sand and sandy-clays were predominately found in all test pits with clay intruding from 0.4 mBGL. Test pit locations are shown in **Figure 4**. **Table 1** presents the laboratory results from three test pits (TP01-TP03), and their proposed soil category and classification, however, it should be noted that samples TP02 and TP03 were taken >1 mBGL.

Table 1: Laboratory soil analysis summary, adopted from GGC (2019) and Douglas Partners (2019)

Test Location	Sample Depth (m)	Gravel (%)	Sand (%)	Fines (%)	Proposed Soil Category	Soil Classification	Source
TP01	0.2-0.7	1	87	12	2	Sandy loam	GCC (2019)
TP02	1.0-1.5	3	89	8	2	Loamy sand	GCC (2019)
TP03	1.5-2.0	0	64	36	5	Sandy clay	GCC (2019)
6	0.9	73	22	5	2	Sandy clay	Douglas Partners (2021)
9	0.4	29	60	11	3	Clayey sand	Douglas Partners (2021)
11	0.35-0.4	13	87	0	1	Sand	Douglas Partners (2021)

GGC (2019) concluded that Lots 14 and 15 should be classified as a "Class P" in accordance with AS2870-2011, due to the presence of uncontrolled Fill and high groundwater (discussed in **Section 2.5.1**).

A depth to the low permeability layer utilising all geotechnical investigations is presented in **Figure 5**. The geotechnical reports are provided in **Appendix B**.

2.2.3.1 Infiltration testing

Permeability testing was conducted during geotechnical investigations at varying depths, with a summary of the results provided in **Table 2**. It should be noted that TP05 recorded a low infiltration rate of 0.03 m/day, however the sample depth was recorded at 1.1 mBGL in sandy clays, therefore does not accurately represent an infiltration rate of surface soils.

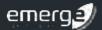


Table 2: Permeability results

Test Location	Sample Depth (m)	Hydraulic Conductivity (m/day)	Source
IFT01	0 - 0.5	2.9	GCC (2019)
IFT02	0 - 0.8	1.3	GCC (2019)
IFT03	0 - 0.65	1.3	GCC (2019)
IFT04	0 - 0.9	1.4	GCC (2019)
TP110	0 - 0.7	1.5	Douglas Partners (2016)
TP05	1.1	0.03	Douglas Partners (2020)
TP11	0.45	1.3	Douglas Partners (2020)

As shown in **Table 2**, permeability testing was taken across a range of depths, however generally show that surface infiltration beneath the lots ranges between approximately 1 - 3 m/day.

2.2.4 Acid sulfate soils

Regional acid sulfate soils (ASS) risk mapping (DER 2006) indicates that the site is classified as having a moderate to low risk of ASS occurring within 3 m of the natural soil surface, as shown in **Figure 6**.

2.3 Sewage sensitive area

The entirety of the site is classified as a sewage sensitive area by the *Policy* (DPLH 2019). The *Policy* defines sewage sensitive areas geographically based on proximity to a variety of environmental assets and sensitivity to on-site sewage disposal. The two classifications of relevance to the site define a sewage sensitive area as:

- Estuary catchments on the Swan and Scott Coastal Plains.
- Within 1 km of a significant wetland.

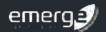
2.4 Surface water

2.4.1 Wetlands

The *Geomorphic Wetlands of the Swan Coastal Plain* dataset (DBCA 2020) indicates that a multipleuse wetland (MUW) extends across the vast majority of the site (UFI: 13619), which generally indicates minimal separation between expressions of groundwater/perched water and natural surface levels. The nearest resource enhancement wetland (REW)/conservation category wetland (CCW) is located on the opposite side of Yule Brook, more than 200 m away and is not hydrological downstream of the site.

2.4.2 Existing hydrological features

The Yule Brook is a natural watercourse located approximately 200 m south-east of the site (as shown in **Figure 7**). The Yule Brook is part of the Water Corporation drainage network which conveys flows west, and ultimately discharges into the Canning River.



2.4.3 Pre-development surface runoff modelling

Emerge Associates prepared a 2D pre-development hydrological model to characterise the existing environment of Precinct 3 (using XPSWMM software), utilising catchments, long sections and inflow hydrographs for Yule Brook provided by the Water Corporation.

The existing hydrological regime is illustrated in Figure 8 of the *Precinct 3A LWMS* (provided as an extract in **Appendix C**), and includes arterial drainage, flow pathways and flooding extent. The modelling indicated that (prior to development of Precinct 3C) 1% AEP event breakout flows from Yule Brook would cross Coldwell Road and flow in a south western direction across Precinct 3A. It can be inferred from the pre-development model that in the major (1% AEP) rainfall event, minor portions within the site become inundated by approximately 0.1 m of rainfall, and some localised low-lying areas (including the existing roads) become inundated up to 0.4 m. It is noted that while pre-development modelling of the 1% AEP event indicates some inundation of existing ground levels, this will be modified when Coldwell Road and adjacent lots are developed as these will be filled and serviced by a concrete piped network designed to accommodate the 10% AEP event.

2.5 Groundwater

2.5.1 Groundwater levels

Groundwater beneath the site is a multi-layered system comprised of the:

- Superficial Swan unconfined aguifer
- Leederville confined aquifer
- Yarragadee North confined aquifer.

Groundwater monitoring was carried out by Endemic in July 2009 and more recently by Emerge Associates across Precinct 3 in June 2016 to provide greater coverage and resolution of groundwater data. One bore (MB09) is located within the site, and two bores (MB02, MB01) are located within proximity (see **Figure 3**).

The measured maximum groundwater levels (MGL) within the site were found to range from approximately 14.5 mAHD in the north to 11.5 mAHD in the south (or 0-1 m BGL), hence groundwater flows in a south-westerly direction. Groundwater levels were also encountered during geotechnical investigations by Douglas Partners (2020) in December 2020 from 1.4 mBGL, and by GGC (2019) in August 2019 from 0.7 mBGL. Given the depth of sandy clays (discussed in **Section 2.2.3**) and low permeability of deeper clayey soils the measured groundwater is likely to be representative of shallow perched groundwater.

The groundwater level data collected to date is provided in **Appendix D**.

2.5.2 Groundwater quality

Water quality monitoring was carried out across Precinct 3 in 2016. Bore locations are shown in **Figure 3**. The water quality results available from bores within and in close proximity to the site are summarised in **Table 3**. Results from bore MB01 were not reported on.

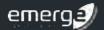


Table 3: Groundwater quality results (average)

Parameter	Units	NWQMS guideline trigger*	MB02	МВ09	GW1					
Field Chemistry	Field Chemistry									
Temperature	°C	-	19.36	20.60	17.97					
Electrical Conductivity	mS/cm	0.3	4.76	17.40	1.91					
Dissolved Oxygen	mg/L	-	2.85	0.47	6.81					
Dissolved Oxygen	% sat	-	31.40	5.50	72.60					
pH	pH units	6.8 - 8.0	6.72	6.30	7.81					
Oxidation-Reduction potential	mV	-	102.00	104.00	21.00					
Nutrients and Nutrient Species										
Ammonia (NH3) as N	mg/L	0.08	0.01	0.05	0.04					
Oxides of Nitrogen (NOX) as N	mg/L	0.15	7.14	0.04	<0.01					
Total Kjeldahl Nitrogen (TKN) as N	mg/L	-	<0.2	0.40	6.30					
Total Nitrogen (TN) as N	mg/L	1.2	7.10	0.40	6.30					
Total Phosphorous (TP) as P	mg/L	0.065	0.19	0.10	0.50					
Reactive Phosphorous (ORP) as P	mg/L	-	0.02	0.02	0.03					

As shown in **Table 3** groundwater beneath the site has a neutral to slightly acidic pH and low salinity. Total nitrogen (TN) and total phosphorous (TP) concentrations are considered 'moderate' to 'high' in relation to the National Water Quality Management Strategy (NWQMS) (ANZECC 2000) guideline trigger values. These concentrations are representative of the historical land use of the site including small scale agriculture and farming.



3 Land Capability

3.1 Determination of soil-terrain units

Geotechnical investigations (detailed in **Section 2.2.3**) show that parent soils within the site are highly variable, within soils classified as either sand, sandy loam, loamy sand, sandy clay or clayey sand. As per *AS/NZS 1547* this correlates to a soil category between 1-5 (test pits are shown in **Figure 4**). Permeability testing was variable, however generally showed infiltration rates between 1-3 m/day.

In addition to the aforementioned, and as discussed in **Section 1.4**, the entire site is proposed to be filled with approximately 1.5 m of fill sand (to allow for adequate separation between groundwater), which nominally would have an infiltration rate of 4 m/day and a soil category of 1. Is it therefore proposed that the addition of 1.5 m of fill be a consideration in adhering to the on-site effluent disposal requirements of the *Policy*.

Assigned soil categories per lot should be confirmed with the development application (DA) process, and in consideration of the proposed fill (1.5 m).

3.1.1 Slope

The feature survey (discussed in **Section 2.2.1**) shows that the site has generally low gradients (between 0% - 0.5%) with localised irregularities associated with existing dwellings. The maximum slope suitable for on-site wastewater systems is dependent upon the type of system proposed and ranges from 10% to 30% (Standards Australia and Standards New Zealand 2012), with surface application systems more sensitive to slope. The topography within the site does not exceed 10% and is therefore not a significant consideration for the purposes of this assessment.

3.2 Additional considerations

3.2.1 Flood-prone areas

The *Policy* (DPLH 2019) stipulates that on-site systems are not to be located in areas that are low-lying and prone to flooding in a 10% AEP rainfall event.

The 10% AEP runoff in the Yule Brook would be contained within the banks of Yule Brook and the breakout flows predicted in the 1% AEP event over Coldwell Road would not occur. The extent of inundation of the site in a 10% AEP event will therefore be limited to localised runoff resulting from direct rainfall on the site. Given the low relief of the site and the presence of roadside drains which convey local stormwater runoff, the 10% AEP event flood levels will be limited to the existing surface levels. The proposed approach to earthworking the site (which includes import of ~1.5 m of sand fill) will result in finished lot levels which are far higher than the pre-development 10% AEP event flood levels.



Of more relevance to the effluent disposal areas will be the depth of 10% AEP event stormwater runoff, which will be directed to and conveyed within the road reserve and associated piped drainage network. Finished lots levels will be 300 mm above the road surface (see **Appendix E**), and therefore all lots will have clearance above the 10% AEP runoff in road reserves.

Precinct 3A, Stages 1-3 UWMP (detailed in Section 1.5.2) indicated that stormwater up to the 1% AEP rainfall event within Lots will be retained and treated on-lot (via soakwells or alternative measures, depending on the low permeability layer), as is stipulated in Criteria SW2 and SW3 of the UWMP. Lots within the site will also be required to provide their own at-lot flood detention storage, and treated effluent disposal areas will similarly not be located within proximity to any onsite stormwater detention, and will need to be located above the top water level of onsite detention. The demonstration that this is achieved will be detailed at the DA stage, when the layout of lot infrastructure will be known. Based on the large average lot sizes proposed in the subdivision plan (see Appendix A), stormwater management assets are likely to be located front of lot and on-site sewage disposal systems will be located on the back of lot, which will provide sufficient clearance from the 10% AEP.

3.2.2 Drainage system separation

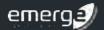
The *Policy* (DPLH 2019) stipulates that on-site sewage systems are not to be located within 100 m of a drainage system that discharges directly into a waterway or significant wetland without treatment.

The drainage strategy for the site was outlined in the UWMP, however has undergone minor changes. A summary of the drainage strategy is provided below and illustrated in the UWMP extract provided in **Appendix F**. As discussed in **Section 2.4.2**, the closest waterway (the Yule Brook) is located approximately 200 m away from the site and although the site will eventually discharge into the Yule Brook, it will be a significant distance downstream (i.e. a minimum of 650 m) and will undergo biological treatment prior to discharge.

Lots will retain frequent event runoff, and will detain runoff up to the 1% AEP on site. Each lot will be provided with an overflow connection for major storm events however frequent storm events will be retained on site (the conceptual pipe network is shown in the civil designs provided in **Appendix E**). The effluent disposal area within each lot will be separated and not connected to the drainage network, and the area will be filled to be above the top water level in any at-lot stormwater detention. Lot levels will be approximately 300 mm above the adjacent road levels. Road drainage will be designed such that the 10% AEP event is accommodated by the pipe network, thereby providing adequate clearance of lots above 10% AEP flood levels in the road reserve.

The road reserve drainage system will have at-source water quality treatment measures that will intercept runoff before it enters the drainage network. A portion of the total runoff from site will then discharge into the Yule Brook at location ('Out 1'), via a vegetated surface channel. The remaining volume of runoff (i.e. from higher flow events) will then be conveyed downstream to be discharged at ('Out 2a') via vegetated swales and a vegetated flood detention basin.

Therefore, although effluent disposal areas will be located within proximity to the drainage system, these are not directly connected, receive localised treatment prior to conveyance by the drainage network and then are conveyed by open surface based and vegetated pathways before discharge into the Yule Brook (see locations of discharge points in **Appendix F**).



3.2.3 Groundwater separation

The vertical separation from an on-site sewage system discharge point and the highest groundwater level within a sewage sensitive area (regardless of soil type) is stipulated as 1.5 m in the *Policy* (DPLH 2019).

As discussed in **Section 2.5.1**, measured MGL within the site is 14.5 m AHD towards the northern boundary, down to 11.5 m AHD in the south (or 0-1 m BGL) as shown in **Figure 2**. As previously discussed, the entire development proposes to use sand fill in order to achieve separation from the MGL. As shown in the civil designs provided in **Appendix E**, the minimum bulk earthwork levels provide a clearance to the MGL of 0.8 m to 2.0 m, therefore some additional fill be required beneath effluent disposal areas to achieve the required 1.5 m of separation. The extent of additional fill within each lot will be determined once the individual configuration of lots and infrastructure type has been determined.

3.2.4 Other setbacks

The Code of Practice for the Design, Manufacture, Installation and Operation of Aerobic Treatment Units (DoH 2015) specifies setback distances (for a flat or gently sloping site) from an ATU (or similar);

- 1.2 m from any boundaries or buildings
- 1.8 m from the surface irrigation disposal area
- 6.0 m from a well, bore, dam or any watercourse whether it is used for a domestic water supply or discharging to a proclaimed water catchment area.

Due to the scale of these setbacks, demonstration of their provision will be detailed at the DA stage, when the layout of infrastructure will be known, however, is not anticipated to be an impediment to providing an appropriate effluent disposal area.

3.3 Summary

A summary of the considerations for effluent disposal (relevant to the site), in regards to the *Policy* is provided in **Table 4**, including a risk assessment and proposed approach.

Site and Soil Evaluation

Stage 4, Precinct 3C MKSEA

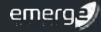


Table 4: On-site effluent disposal constraints relevant to the site- Risk assessment.

Site/system Feature	Less constrained	More constrained	Proposed approach	Risk category	Response to risk category
Microbial quality of effluent	Effluent quality consistently producing ≤ 10 cfu/100 mL E. coli (secondary treated effluent with disinfection)	Effluent quality consistently producing ≥ 106 cfu/100 mL E. coli (for example, primary treated effluent)	Secondary treatment with disinfection will be mandated for all lots within the site. Secondary systems achieve 10 cfu/100 mL of E. coli	Low	No further action required
Soil-terrain	Category 1 to 3 soils	Category 4 to 6 soils	Category 2-5 in-situ soils	Low-Moderate	The entire site is proposed to be underlain with approximately 1.5 m of sand fill (soil category of 1) with a nominal infiltration rate of 4 m/day
Slope	0 – 10% (subsurface effluent application)	> 10% (surface effluent application), > 30% subsurface effluent application	Slopes of around 0-0.5%	Low	No further action required
Flood potential	Outside the maximum 10% AEP top water level	Located within low-lying or prone to flooding in a 10% AEP rainfall event	Effluent disposal areas will be elevated above the 10% AEP flood levels within lots and the adjacent road reserves. Effluent disposal areas within lots will be located separate from and above lot scale stormwater detention. Runoff from Courtney Place and Coldwell Road will be piped off-site (sized for the 10% AEP).	Low-Moderate	Large average lot sizes allow for sufficient clearance between stormwater management assets and land application areas. Stormwater management assets are likely to be located in the front of lot and on-site sewage disposal systems back of lot, thereby sufficient clearance from the 10% AEP will be provided. The exact position of application areas will be allocated in future UWMPs/ DA stage

Site and Soil Evaluation

Stage 4, Precinct 3C MKSEA

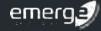
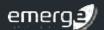


Table 5: On-site effluent disposal constraints relevant to the site- Risk assessment (continued)

Site/system Feature*	Less constrained*	More constrained*	Proposed approach	Risk category	Response to risk category
Drainage system separation	On-site sewage systems are not located within 100 m of a drainage system	On-site sewage systems are located within 100 m of a drainage system that discharges directly into a waterway or significant wetland	Lots and effluent disposal areas in some smaller lots (6) will be <100 m from a drainage system, and likely approximately 30 m. Frequent stormwater runoff within lots will be retained and treated in lots. Road reserve runoff will be treated at source and then conveyed by a pipe network to downstream treatment areas prior to discharge into the Yule Brook. Runoff will travel a minimum of 650 m and up to 1.2 km before being discharged to the Yule Brook	Low-Moderate	Runoff from the road network/lots will be treated before discharging into the Yule Brook (i.e. the stormwater will undergo biological treatment before discharging into the waterway)
Groundwater separation within a sewage sensitive area	MGL is lower than 1.5 m below the natural surface level	MGL is within 1.5 m of the natural surface level	The effluent disposal areas will utilise sand fill in order to achieve 1.5 m of separation from the MGL	Low	1.5 m of fill will allow the minimum adequate clearance, no further action required
Application method	Subsurface application of effluent	Surface/above ground application of effluent	Treated wastewater will be applied via subsurface application using flatbed leach drains or similar (and as approved by DoH)	Low	ATUs which dispose of wastewater via sub-surface flatbed leach drains are proposed

As demonstrated in **Table 4**, the residual risk posed by the development effluent disposal areas is considered to be low.



4 Wastewater Management

4.1 Expected wastewater volume

The expected hydraulic load of commercial/industrial waste premises as dictated by the fact sheet: Supplement to Regulation 29 – Wastewater system loading rates (DoH 2019), which notes that the system owner will determine wastewater/liquid waste hydraulic loading, based on peak flow events. Similarly, it notes that the following system owner controls will be implemented:

- Metering of wastewater / liquid waste volumes produced
- Ensuring that the maximum capacity of the system is not exceeded.

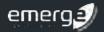
As previously discussed, the proposed land uses (i.e. major transport, storage and logistics operations) will be 'dry industry' which do not generate large volumes of wastewater. Wastewater would be generated by worker ablutions and amenities, and in this regard, it is expected that wastewater flows would be in the order of 70 L/day per employee showering onsite, or 35 L/day per employee if not showering. These figures are consistent with the generation volumes provided in Appendix H of *AS/NZS 1547*. Given Hesperia's experience in other similar industrial developments, and given the likely employment generation from the target businesses of around 70 persons/ha of building area, wastewater generation volumes are anticipated to be in the order of 1,840 L/Ha/day (based on 50% hardstand and 50% building). Details regarding how these flows have been determined are provided in **Section 4.1.1**.

4.1.1 Wastewater generation analysis

In order to determine wastewater volume generation from industrial uses, similar industrial uses/facilities were examined to develop a specific understanding of the employment intensity associated with these. **Table 5** outlines similar facilities and their specific employment intensity figures.

Table 5: Comparative industrial uses/facilities and their employment intensity

Facility	Warehouse area (m²)	Office area (m²)	Average daily employees	Average employee/m ² of building
Toll	7,000	500	70	0.0093
Northline	20,000	700	100	0.0048
Sigma	15,000	940	100	0.0063
Bevchain	25,000	800	120	0.0047
Kmart	40,000	1,300	117	0.0028
McPhee	15,000	350	40	0.0026
Aldi	45,154	1,995	262	0.0056
Average				0.005154941



From the above, the following key parameters were derived:

- The average number employees/m² of building was 0.005154941.
- The number employees/m² of building ranged between approximately 0.009 to 0.0003
- Based on the above and for the purposes of this assessment 70 employees/ha is selected as an appropriately conservative figure.

The estimated employee wastewater generation volumes are outlined in Table 6.

Table 6: Estimated employee wastewater generation volumes

	Proportion of total employees	Wastewater generation (L/day/employee)
Showering employees	50%	70
Non-showering employees	50%	35
Average generation rate	52.5	

Assuming that the building footprint is 50% of the total land/lot area, the overall estimated wastewater generation rate for the proposed industrial land uses/facilities is 1,838 L/day/ha of lot.

It should be noted that washing facilities (where required) for truck and/or container washing would be accommodated through closed water recycling systems (currently standard practice), and therefore any such flows are not accommodated in the above.

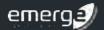
4.2 Appropriate treatment technology and onsite sewage management systems

The *Policy* (DPLH 2019) mandates that where on-site disposal is proposed within a sewage sensitive area that a secondary treatment system (such as an ATU) with nutrient removal capability is to be used. The performance requirements of secondary treatment systems with nutrient removal are described in Section 7 of the *Policy* (DPLH 2019).

4.2.1 Wastewater treatment and disposal solution

As part of the previous on-site effluent disposal support (discussed in **Section 1.5.3**) for earlier stages at MKSEA, the proponent engaged AWS, a Western Australian owned provider of alternate wastewater solutions. AWS has designed and manufactured wastewater systems for large commercial applications, including but not limited to industrial facilities, caravan parks, wineries, schools, colleges, tourist resorts and mine sites, including sites with challenging environmental restraints.

The units proposed for use at MKSEA are DoH approved ATUs with the O-3 and O-2NR, which are 'nutrient retentive systems'. These systems achieve TP removal of 98.5% and TN removal of 97.8%.



All AWS ATUs are also certified to satisfy AS/NZS 1564.3 and treat wastewater via a natural biological process to the following DoH ATU standards:

- 20 mg/L for BOD5
- 30 mg/L for suspended solids
- 1 >mg/L for TP
- 10 mg/L for TN.

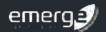
Treated wastewater will be disposed of via flatbed leach drains (see **Plate 1**). It is also proposed that a separate AWS system will be utilised for each individual lease area/building within the MKSEA (i.e. the development area is not proposed to be a micro-reticulated system). These will be installed at the time of built form construction and will then be regularly maintained as part of the ongoing operating and maintenance arrangements for the leased facilities (discussed further in **Section 4.5**).

Any wastewater produced from industrial processes will need to be treated appropriately, in accordance with *Water Quality Protection Note (WQPN) 51: Industrial wastewater management and disposal* (DoW 2009), however given the 'dry industry' uses proposed this is not anticipated to be a consideration.

At this stage Hesperia intends to progress with using AWS systems, however, there are a range of other ATU systems that could be used to service the proposed industrial land uses within the MKSEA. The calculations to demonstrate the area required for disposal using flatbed leach drains are outlined in **Section 4.3**.



Plate 1: A flatbed leach drain being installed. Note the shallow depth of these which will maximise separation from groundwater and the impervious layer.



4.3 Land application area requirements

The land application area is the area where the wastewater from a treatment system is applied into or onto the ground. Flatbed leach drains are proposed to be used for discharge of treated effluent.

The calculation of the minimum required land application area (i.e. with use of wastewater application in trenches) is described in Schedule 2 of the *Policy* and is the estimated hydraulic load (occupancy multiplied by the design loading rate – see **Section 4.1**) multiplied by a conversion factor. The appropriate conversation factor is determined by selection of the proposed treatment type and the soil category (Table 2 of Schedule 2 from the *Policy*). The land application area when other methods of application are proposed is calculated based on loading rates defined for varying systems in AS 1547 (Table 5.2). The calculated minimum land application area for trenches under each soil-terrain unit (using the conversion factor) is summarised in **Table 7**.

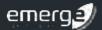
Table 7: Land application area requirements (secondary systems)

Soil category	Soil-terrain unit	Application System	Hydraulic loading (L/day)	Conversion factor (L/day) (DPLH 2019)	Design irrigation rate (mm/day) (AS 1547)	Minimum land application area (m²)*
Category 1	Gravels and sands			0.2	50	368
Category 2	Sandy loams			0.2	50	368
Category 3	Loams	Trench	1 940	0.25	30-50	460
Category 4	Clay-loams	Trench	1,840	0.286	30	526
Category 5	Light clays			0.333	10-12	613
Category 6	Medium to heavy clays			0.5	/	920

^{*}Application area and treatment systems setbacks are not accounted for.

The geotechnical investigation (discussed in **Section 2.2.3**) results indicate that in situ soil within the site would align with soil Category 2-5, however based on the proposed imported sandy fill (1.5 m) across the entire site, post-development soil terrain is expected to be permeable sand, which correlates with a soil Category 1.

Two methods have been used to assess the minimum land application area for the site, and are discussed in **Section 4.3.1.1** and **Section 4.3.1.2**.



4.3.1 Land area requirements for soil Category 1

4.3.1.1 Method 1

Based on the *Policy* (DPLH 2019), the size of the land application area (in relation to trenches) should be determined in accordance with the conversion factors prescribed in **Table 7** and *AS/NZS 1547* as follows:

- 1 Estimate hydraulic load (L/day): occupancy rate (persons) x design loading rate (L/person/day).
- 2 Calculate land application area (m²): hydraulic load (L/day) x conversion factor.

If the above method was used, the land application area for a 1.4622 ha lot would be 539 m² (3.7% of the lot) assuming the following:

- 1 Hydraulic load of 1,838 L/day/ha x 1.0 ha = 1,838 L/day
- 2 Conversation factor for (soil Category 1) is 0.2 = 368 m²

4.3.1.2 Method 2

A site-specific example (method 2) provides a more accurate indication of the area requirements for treated wastewater disposal via flat leach drains.

The following methodology is based on AS/NZS 1547:2012 and is specific to the treated wastewater disposal approach as detailed in this submission.

- 1 The flatbed leach drain itself is 20 m in maximum lengths and 2.4 m in effective width.
- 2 AS/NZS 1547:2012 recommends a minimum spacing of 1 m between drains, although for the purposes of this calculation 2 m spacing between drains is assumed.
- 3 Based on Table L1 of Appendix L of *AS/NZS 1547*:2012, the Design Loading Rate (DLR) for secondary treated effluent for gravels and sands is 50 mm/day, which equals a loading rate of 50 L/m²/day.
- 4 The hydraulic load for a 1.0 ha lot is 1,838 L/day.
- 5 Utilising the methodology within Section L4.2 of *AS/NZS 1547*, the length of drain required should be determined from the relationship below.

$$L = \frac{Q}{(\text{DLR x W})}$$

$$L = length in m$$

$$Q = design daily flow in L/day$$

$$DLR = design loading rate in mm/d$$

$$W = width in m$$

On the above basis a 1 ha lot in Category 1 soils will require 15 m of flatbed leach drain plus setbacks. Assuming a 1 m setback either side the area required will be approximately 38.8 m^2 /ha.



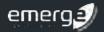
4.4 Capability of land to accommodate sewage application

The proposed subdivision layout provided in **Appendix A** illustrates that the range of lot sizes is proposed to be between 2,101 m² to 14,622 m². The land area required for on-site application of treated wastewater utilising methods 1 and 2 for a soil-terrain Category 1 varies significantly from 38.8 m²/ha to 368 m²/ha respectively. However given the minimum lot sizes described, even the smallest lot and using the conservative method 1 will be able to provide an adequate land application area to enable the disposal of secondarily treated effluent.

4.5 Monitoring and maintenance

Secondary treatment systems are to be installed and operated in accordance with the *Health* (*Treatment of Sewage and Disposal of Effluent and Liquid Waste*) Regulations 1974, the Code of *Practice for the Design, Manufacture, Installation and Operation of Aerobic Treatment Units* (DoH 2015) and *AS:1547*. Treatment systems must be serviced by an authorised service person on a regular basis (usually quarterly) as per the conditions of product approval issued by the DoH.

The Code of Practice for the Design, Manufacture, Installation and Operation of Aerobic Treatment Units (DoH 2015) details minimum standards for the design, manufacture, installation and operation of secondary treatment and application systems (i.e. ATUs), and provides guidance to local government as to how to assess the installation and ongoing operational requirements. Adherence to the Code is considered to be sufficient to ensure the risks associated with the treatment and application of wastewater on-site are mitigated.



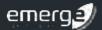
The maintenance schedule of effluent systems will be organised during commercial land management arrangements (i.e. as part of the ongoing operating and maintenance arrangements for the leased facilities). Treatment system manufacture and installation companies typically offer an annual maintenance service with a certificate of completion that can be provided to demonstrate compliance. An appropriate auditing procedure will also be implemented by CoK to ensure maintenance of secondary treatment systems is occurring as required.

4.6 Conclusion

The wastewater management strategy for the site, as outlined in this SSE, has been developed in conjunction with the MKSEA *On-site Sewage Treatment and Disposal Report* provided in **Appendix A**, however has been updated to reflect current policy wording. The approach for wastewater management within the site includes:

- Appropriate sizing of application areas based on lot-scale geotechnical studies.
- Using imported sandy fill to maintain vertical clearance requirements (1.5 m) from the MGL and to be above the 10% AEP event top water levels.
- Locating effluent disposal areas as far away from roadside drainage as practicable.
- Adopting secondary treatment systems with nutrient removal which discharge via flatbed leach drains for all lots.
- Ensuring appropriate installation, monitoring and maintenance of systems.

This SSE confirms that given the approach proposed there are no constraints or physical characteristics that would prevent on-site sewage disposal being appropriate for adoption within all lots. Therefore, wastewater can be appropriately managed onsite and in accordance with current *Government Sewerage Policy* (DPLH 2019) and *AS/NZS 1547 On-site domestic wastewater management* (Standards Australia and Standards New Zealand 2012) requirements. The provision of secondary treatment systems can be accommodated as part of the subdivision and subsequent development approval processes for individual lots/facilities.



References 5

5.1 General references

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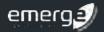
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Figures



Figure 1: Location Plan

Figure 2: Site Plan and Lot Numbers

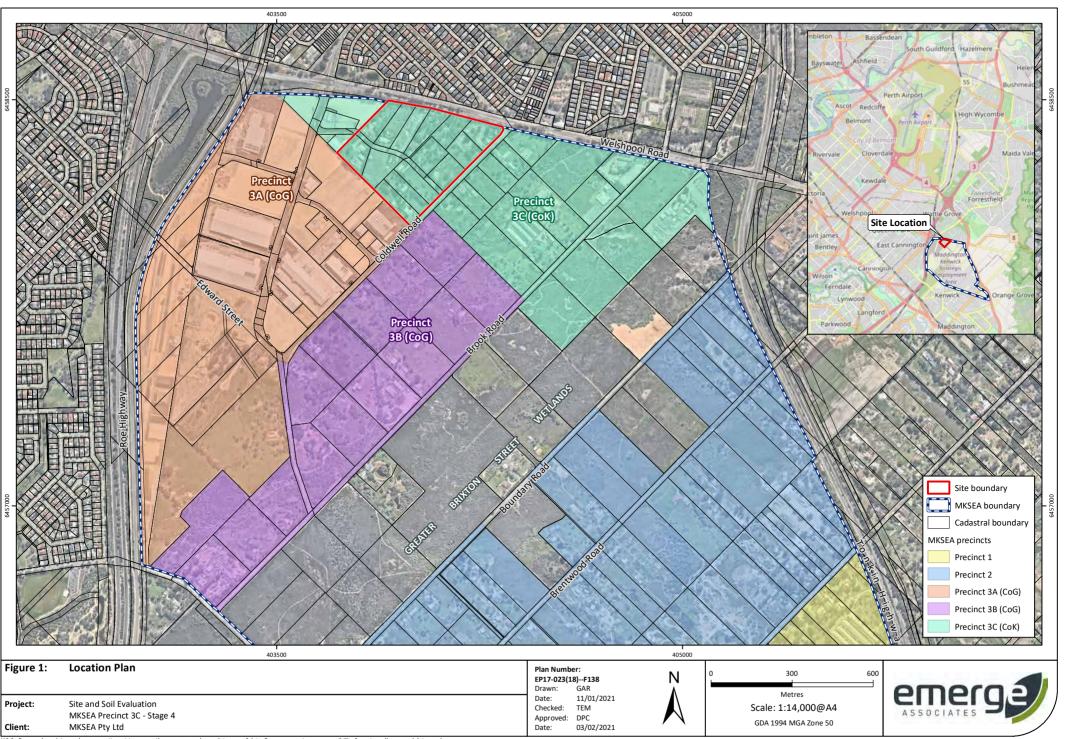
Figure 3: Topography and Groundwater Contours

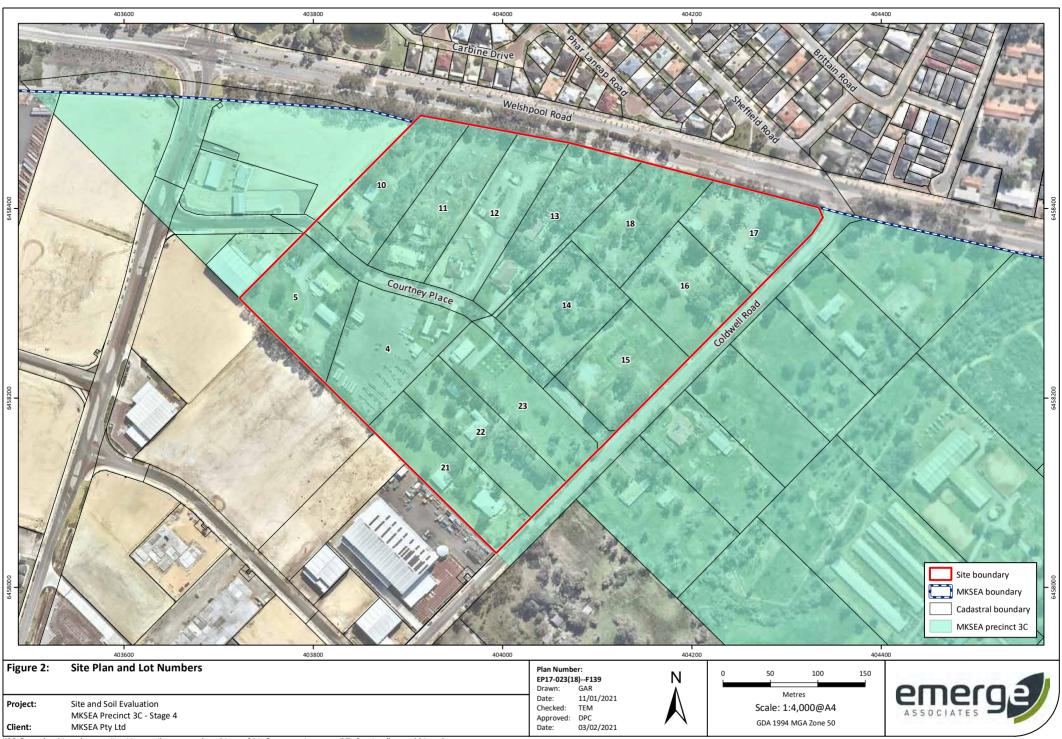
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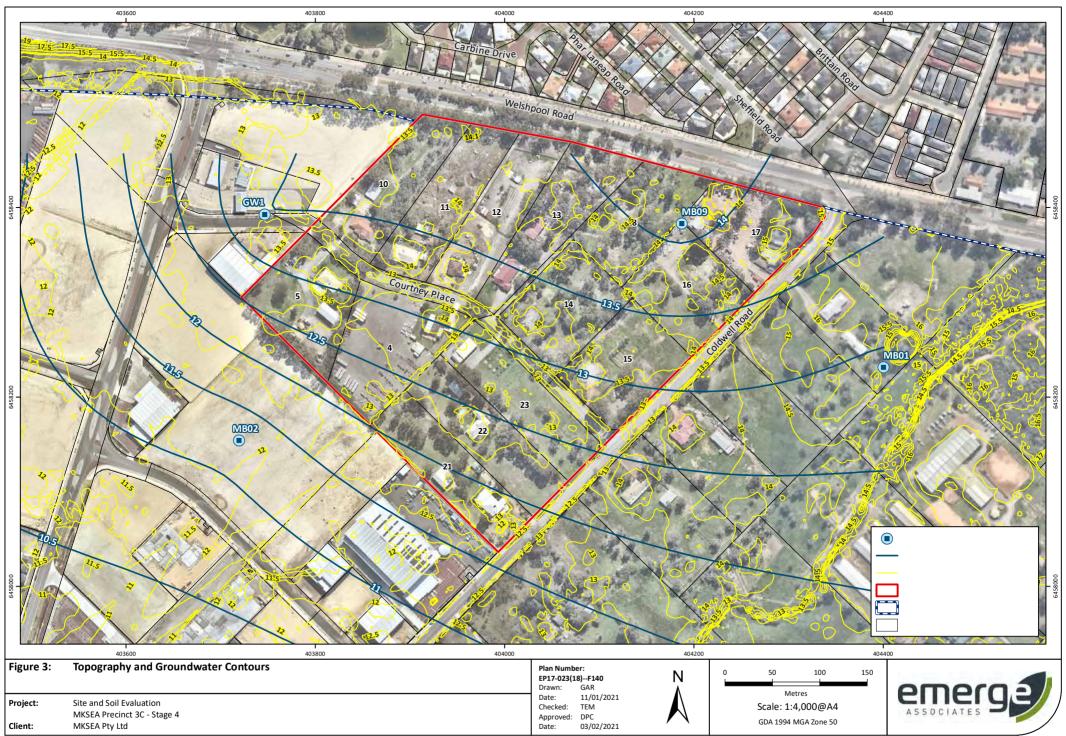
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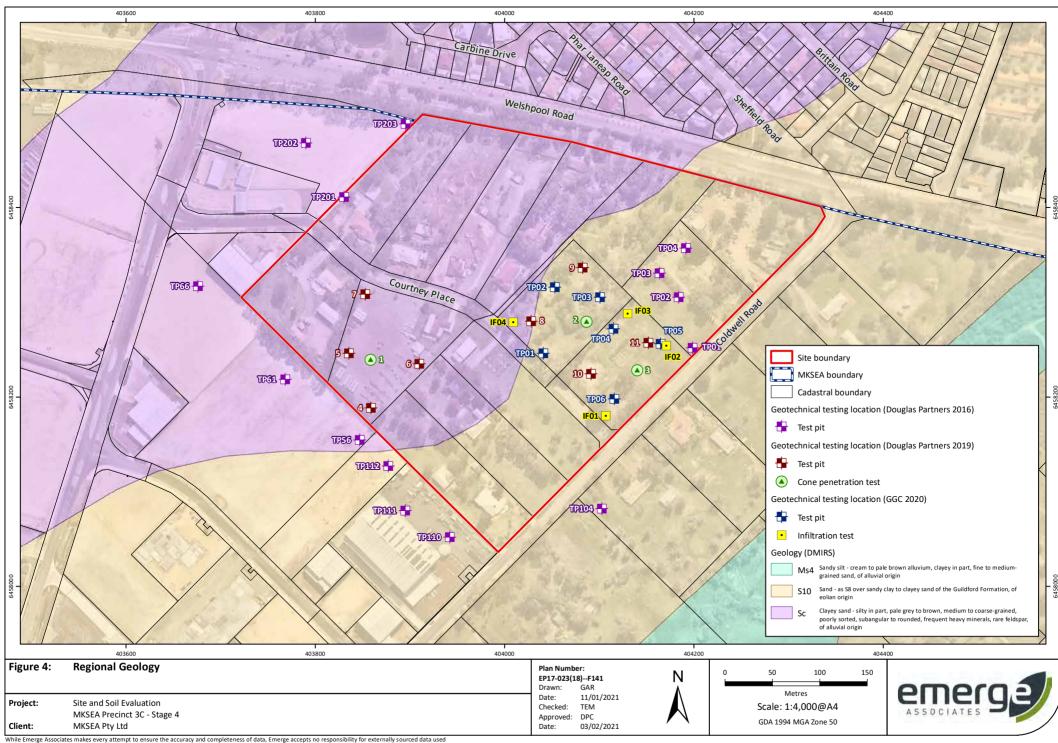
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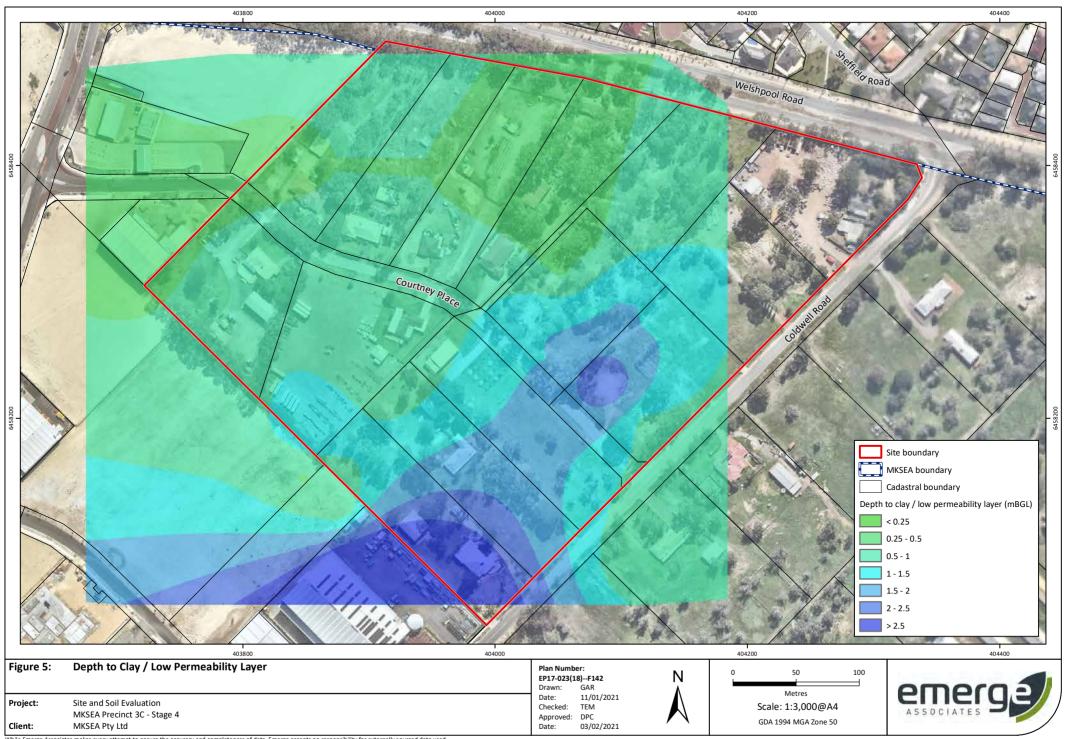
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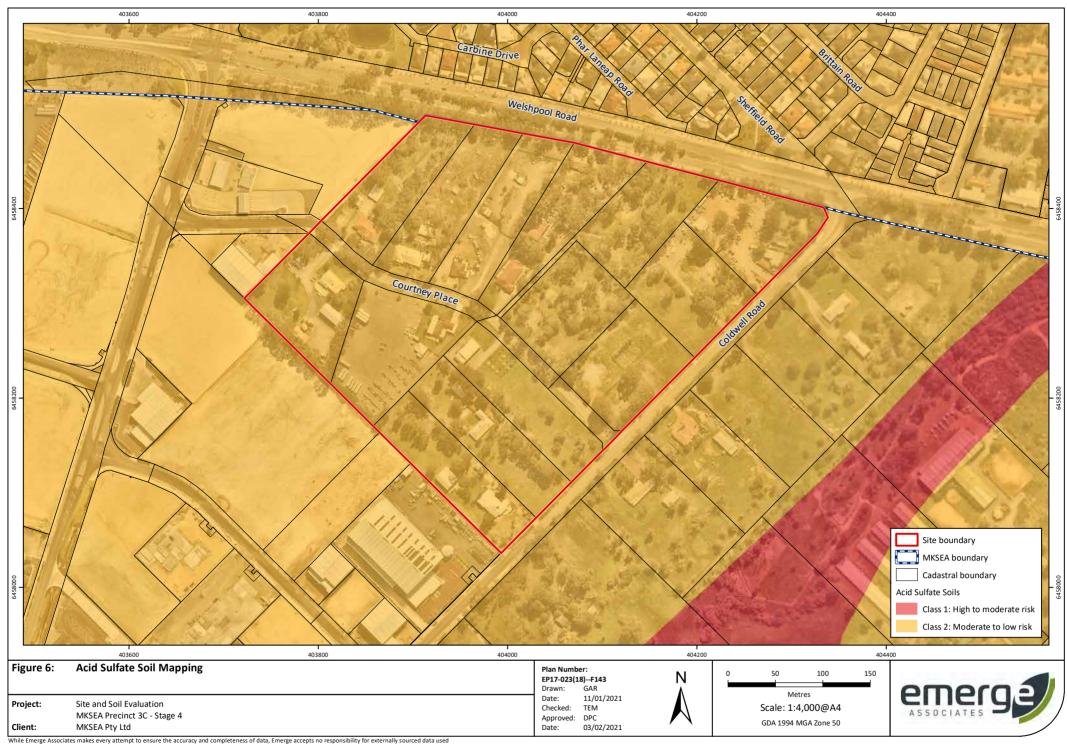


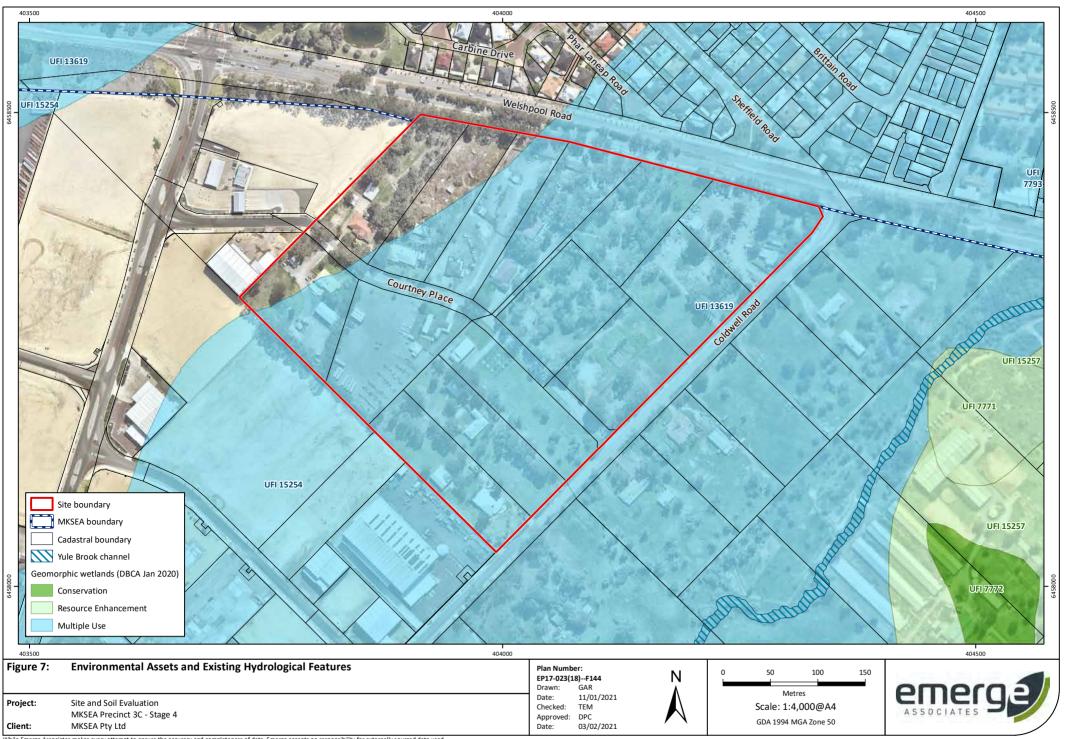










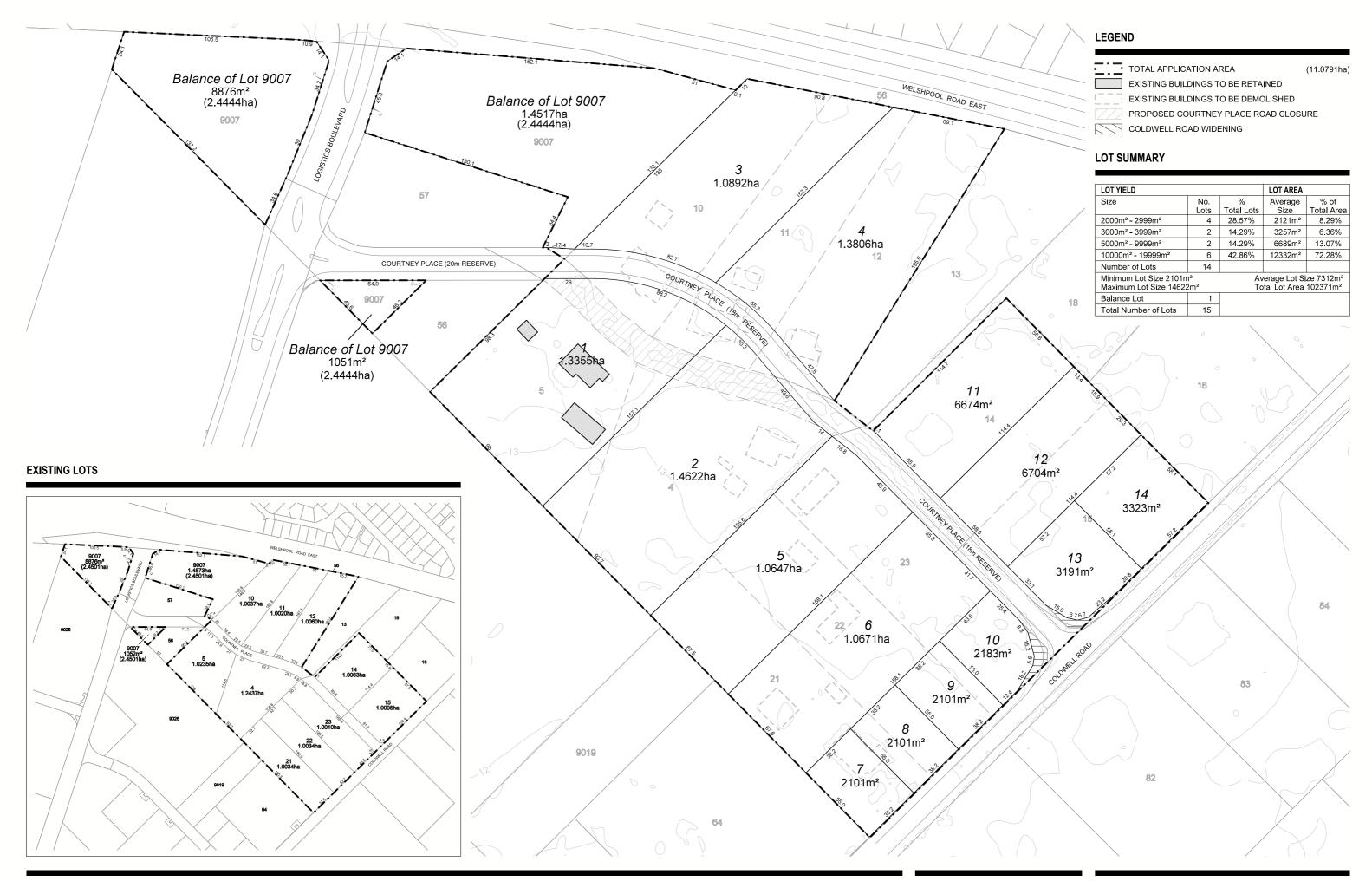


Appendix A

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Subdivision Plan

Provided by Hesperia (2020)





MADDINGTON - KENWICK STRATEGIC EMPLOYMENT AREA - PRECINCT 3A

DRAFT 12

plan: 15/073/272 scale: 1:2000@A3 | 1:1000@A1 0 20 40m designed: JR checked: JR

Taylor Burrell Barnett Town Planning & Design Level 7, 160 St Georges Terrace, Perth WA 6000 e: admin@tbbplanning.com.au p: (08) 9226 4276



Appendix B

emerge

Geotechnical report/Test pit logs

Provided by Douglas Partners (2016, 2020) and GCC (2019)



Report on Geotechnical Investigation

Proposed Roe Highway Logistics Park Stage 4 Industrial Subdivision Development Courtney Place, Wattle Grove WA

Prepared for MKSEA Pty Ltd

Project 88698.44 January 2021



Integrated Practical Solutions



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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature		Date	
Author	Perfs	27 Jan 2021	
Reviewer	April	27 Jan 2021	





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Report on Geotechnical Investigation

Proposed Roe Highway Logistics Park Stage 4 Industrial Subdivision Development

Courtney Place, Wattle Grove WA

1. Introduction

This report presents the results of a geotechnical investigation undertaken for proposed Stage 4 of the Roe Highway Logistics Park (RHLP) Industrial Development, in Wattle Grove WA. The investigation was commissioned by Hesperia Pty Ltd on behalf of MKSEA Pty Ltd and was undertaken in accordance with Douglas Partners' proposal PER200415.Rev1 dated 9 November 2020 and as a variation to the Professional Services Agreement RHLP/DP0001.

It is understood that the proposed development comprises an industrial subdivision with each future lot requiring on site effluent disposal. Due to access restriction to some parts of the site, the field work and reporting is currently limited to approximately half the total site, which has been designated in this report as the 'Phase 1' investigation area.

The purpose of the investigation was to assess the subsurface conditions across the site and thus:

- Assess the soil conditions across the site.
- Assess the suitability of the site for the proposed development.
- Provide the site classification in accordance with the requirements of AS 2870-2011.
- Site preparation, compaction, excavatability and re-use of existing soils, for the proposed development.
- Provide comments on appropriate foundation system(s) for typical structures.
- Assess foundation design parameters including allowable bearing pressures for pad and strip footings, and likely settlements beneath such footings.
- Provide the depth to groundwater, if encountered.
- Provide pavement design parameters using Douglas Partners' experience in the area and limited laboratory testing.
- Assess the depth to groundwater, if encountered.
- Provide comment on the permeability of the soils and suitability for on-site stormwater disposal.

The investigation of the Phase 1 area included the excavation of eight test pits, in situ infiltration testing at three locations, three cone penetration tests and laboratory testing of selected samples. The details of the field work are presented in this report, together with comments and recommendations on the items listed above. Following completion of the investigation across the reminder of the Stage 4 site (Phase 2 area), a revision of this report will be issued.



2. Site Description

The RHLP Stage 4 site is a 9.7 ha parcel of land and comprises Lots 4, 14, 15, 21, 22 and 23, and the southern part of Lots 10 to 12, of Courtney Place, in Wattle Grove, WA. It is bound by industrial subdivision on the western and southern sides and rural residential on the northern and eastern sides.

At the time of the investigation, access to approximately half the site was not possible and as such, this initial investigation is referred to as Phase 1 and generally covers Lots 4, 14 and 15, totalling approximately 3.25 ha in area. Owing to its use as a laydown area, Lot 4 was largely devoid of vegetation apart from some mature trees on the boundaries. Vegetation on Lots 14 and 15 generally consisted of medium length grasses and mature trees, estimated up to 15 m in height. Relatively recent demolition of residential dwellings was apparent on both Lots 14 and 15.

The ground surface level across the site varies from approximately RL 12.5 m to 14 m AHD.

The Armadale 1:50 000 Environmental Geology sheet indicates that shallow sub surface conditions beneath the site are likely to comprise clayey sand of the Guildford Formation in the western part of the project area, and a thin lens of Bassendean Sand over clayey materials of the Guildford Formation in the eastern part of the site.

The Perth Groundwater Atlas (2004) indicates that the groundwater was at a level of approximately RL 9 m AHD in May 2003. The maximum groundwater level contours within the local water management strategy provided by others indicates maximum groundwater levels ranging from RL 11.5 m AHD in the south of the site to 13.75 m AHD in the north.

3. Field Work Methods

Field work was carried out on 11 December 2020 and comprised:

- Three cone penetration tests (CPT) to a depth of 5 m;
- Eight test pits to depths of between 2.5 m and 2.7 m;
- Perth sand penetrometer testing to depths up to 2 m adjacent to each test pit; and
- In situ permeability testing at three locations.

The CPTs (test locations 1, 2 and 3) were carried out using a 22 tonne truck, pushing a 36 mm diameter cone with a following 130 mm long sleeve into the soil at a speed of 20 mm/sec. Strain gauges in the cone and sleeve measure resistance to penetration and this data allows the assessment of the type and conditions of material penetrated.

The test pits (test locations 4 to 11) were excavated using an 8 tonne backhoe with a 450 mm toothed bucket, and were logged in general accordance with AS 1726-2017 by a geotechnical engineer from Douglas Partners. Soil samples were recovered from selected locations for subsequent laboratory testing.

The PSP tests were carried out adjacent to the test pits in accordance with AS 1289.6.3.3, to assess the in situ density of the shallow soils.



Three in-situ permeability tests were undertaken at various locations and depths to target the different soils encountered at the test locations. Testing was carried out at locations 5, 9 and 11 to target sandy clay, clayey sand and silty sand.

Soil samples were also collected at broadly regular depth intervals in all test pits for laboratory analysis of common contaminants of potential concern. The results of this testing and related comments are provided within a separate report referenced 88698.45.R.001.Rev0.

Test locations were determined using GPS coordinates and site features, and are marked on Drawing 1 in Appendix B. Surface elevations at each test location were interpolated from publicly available LiDAR data and are quoted in m AHD.

4. Field Work Results

4.1 Ground Conditions

Detailed logs of the ground conditions and results of the field testing are presented in Appendix B These should be read in conjunction with the notes defining descriptive terms and classification methods included in Appendix A. A summary of the ground conditions encountered at the test locations is given below:

- Unit 0: TOPSOIL sandy topsoil with organics to 0.1 m depth at location 9. While not encountered at other test locations, from a visual survey, it is anticipated to cover the majority of Lots 14 and 15.
- Unit 1: FILL (Sandy GRAVEL, GP-GM/SAND, SP-SM) gravel hardstand and/or gravelly sand and sand fill materials to various depths up to 0.5 m at most locations. Disturbed sand with demolition rubble from previous house demolition was observed to depths of between 1.0 m and 1.2 m at locations 8 and 10.
- Unit 2: SAND, SP-SM/SP-SC light grey, brown and yellow-brown, with silt and with clay, generally as a thin layer underlying the fill material to depths of between 0.3 m and 1.6 m depth, although to test pit termination depths of 2.5 m at location 10. No sand was present at location 6.
- Unit 3A: FILL (Sandy CLAY, CI) brown, medium plasticity sandy clay fill between 0.5 m and 0.8 m depth at location 6.
- Unit 3: Clayey SAND/Gravelly Clayey SAND, SC/Sandy CLAY CL CH low to high plasticity, generally brown, blue-green and white clayey materials underlying the sand from depths of between 0.3 m and 1.6 m, and extending to test pit termination depths of between 2.5 m and 2.7 m at each location, except location 10. The white clayey material encountered at locations 5, 6 and 9 is interpreted to be weathered Muchea Limestone.

A table summarising the general ground conditions encountered across all test locations is provided on the following page. For simplicity, the depths and levels of the soil units have been rounded to the nearest 0.1 m.



Table 1: Summary of Encountered and Interpreted Ground Conditions

Level	-		Test Loca	ations					Test Locat	ions	_	Leve
m AHD	1	4	5	6	7	2	3	8	9	10	11	m AHI
14.5		Legend							······································	***************************************		14.5
14.4		Unit 0: To	psoil									14.4
14.3		Unit 1:Gra	ınular FILL									14.3
14.2		Unit 2: Na	ıtural SANI	O with silt/cl	ay							14.2
14.1		Unit 3A C	layey FILL									14.1
14		Unit 3: Na	itural Claye	y Soil				Unit 1	Unit 0			14
13.9								Office	- Unit 2		Unit 1	13.9
13.8									Offic 2	Unit 1		13.8
13.7							~			Onit i		13.7
13.6								~	~			13.6
13.5	••••••••	***************************************		***************************************	***************************************	200			***	•••	•	13.5
13.4			***************************************		***************************************							13.4
13.3			***************************************		***************************************	Unit 1	~	~			,	13.3
13.2						_		Unit 2	~	m	- Unit 2	13.2
13.1				Unit 1	Unit 1	bod .	Unit 2		-		*	13.1
13		~	~	_	~	~	~	~	~		~	13
12.9		- Unit 1	Unit 1	~	Unit 2	~	~		~	~ h	~	12.9
12.8		~	~	··	~			~	~	~	~	12.8
12.7			~	Unit 3A	~	~	~	~		~	*	12.7
12.6	Unit 1	~	~	~	~	**		~	- Unit 3	~	~	12.6
12.5			~		~	~	~	-	-	Unit 2	~	12.5
12.4		~	 Unit 2	~	~	~	~		~	~	~	12.4
12.3		~	~	~	~	~	~	- Unit 3	-	~	~	12.3
12.2		~	~	~	~	_	-	-	_	- I	~	12.2
12.1		Unit 2	~	~	~	- Unit 2	~	-		I	- Unit 3	12.1
12		~	~	~	~		~	~		-	~	12
11.9			-									11.9
11.8		~	~	~	~	~	~	~	m		~	11.8
11.7		~	~	Unit 3	- Unit 3	~	- Unit 3			***************************************	~	11.7
11.7		~	~	~	~	~	~				7	11.6
11.5			~	~	~	~	~					11.5
11.4			~	~	~		~					11.4
11.4	Unit 3		 Unit 3									11.3
11.2	J	~		~	~	- Unit 3	~		***************************************	***************************************		11.2
		 Unit 3	~	-	~	~	~	***************************************			***************************************	_
11.1		ornic 3										11.1
11												11
10.9			~		~			***************************************	***************************************		***************************************	10.9
10.8												10.8
10.7			~									10.7
10.6									***************************************			10.6
10.5												10.5



4.2 Groundwater

Groundwater seepage was observed at the time of the investigation on 11 December 2020. Groundwater observations at the test locations are summarised in the table below.

Table 2: Groundwater Observations on 11 December 2020

Test Location	Groundwater Observation	Depth (m)	Level (m AHD)
4	Seepage	1.4	11.7
6	Seepage	2.1	11.2
8	Seepage	2.5	11.9
11	Seepage	2.0	12.0

Each test location was backfilled immediately after testing which prevented long-term monitoring of levels. Groundwater levels can be affected by climate conditions and land usage, and will vary with time.

4.3 In Situ Permeability Testing

Three in-situ infiltration tests using the constant head method were undertaken within the site. The tests were undertaken in accordance with AS 1547 Appendix 4.1G and were undertaken at particular depths and locations to target the shallow soil types encountered during the investigation. The permeability results are summarised in the table below.

Table 3: Summary of Permeability Analysis

Test	Depth	Perme	ability	Metavial
Location	(m)	m/s	m/day	Material
5	1.1	3.3 x 10 ⁻⁷	0.03	Sandy CLAY
9	0.5	1.5 x 10 ⁻⁴	12.7	Clayey SAND, with gravel
11	0.45	1.5 x 10 ⁻⁵	1.3	Silty SAND

5. Laboratory Testing

A geotechnical laboratory testing programme was carried out on selected soil samples by a NATA registered laboratory, and comprised the determination of:

- the particle size distributions of three samples; and
- the Atterberg limits and linear shrinkage of two samples.

Detailed test report sheets are given in Appendix C and the results are summarised in the table below.



Table 4: Results of Laboratory Testing for Soil Identification

Test Location	Depth (m)	Fines (%)	Sand (%)	Gravel (%)	LL (%)	PL (%)	PI (%)	LS (%)	Material
6	0.9	73	22	5	57	16	41	14.5	Sandy CLAY(CH), trace gravel, high plasticity
9	0.4	29	60	11	26	12	14	4.0	Clayey SAND (SC), trace gravel, low plasticity fines
11	0.35-0.4	13	87	0	-	-	-	-	Silty SAND (SM)

Notes: Fines are particles smaller than 75 µm.

Sand is particles larger than 75 µm and smaller than 2.36 mm.

Gravel is particles larger than 2.36 mm and smaller than 63 mm.

PL: plastic limit LL: liquid limit PI: plasticity Index LS: linear shrinkage '-' not tested.

6. Proposed Development

The site will be developed to form six new lots for industrial development, a section of Courtney Place will be realigned through the southern part of Lots 10 to 12 and the intersection with Coldwell Road will be widened to create a more suitable intersection for large vehicles.

Specific information on proposed finished lot levels was not available at the time of writing, however based on our previous experience with other stages of the Roe Highway Logistics Park, it has been assumed that some 'free draining' non-reactive sand fill will be placed across the site to provide clearance to underlying clayey soils for both drainage and site classification purposes. An approximately 0.8 m thick layer of 'free draining' sand has been adopted in previous stages of the development. Following earthworks, the target site classification is Class S.

Areas where the clayey soils are close to the surface have required excavation and grading of the clayey soils to provide the aforementioned separation between finished surface level and clayey soils.

7. Comments

7.1 Site Appreciation and Suitability for Development

The results of the investigation indicate that ground conditions across the site generally consist of uncontrolled fill and/or areas of gravel hardstand, overlying in situ sand overlying cohesive materials of the Guildford Formation. The uncontrolled fill was generally non-reactive and although some foreign inclusions were observed, generally comprised gravel and inert inclusions.

Loose sand fill was encountered to a depth of 0.75 m at location 8. Based on the results of the investigation, the encountered conditions at location 8 are not anticipated outside of the sandy, raised house pads remaining in place, following the demolition of the houses on Lots 14 and 15.



Groundwater seepage, indicative of perched groundwater was observed between RL 11.2 m and 12.0 m AHD which corresponds to depths between 1.4 and 2.5 m below surface at the time of the investigation.

Based on our understanding of the intended design approach for the earthworks at this site, the following are considered minor geotechnical constraints that will require management or design to suitably address:

- Uncontrolled fill. Generally granular non-reactive, although reactive clayey fill was encountered at
 test location 6 and should be assumed to occur elsewhere. Management to comprise
 compaction/proof rolling in situ and compaction testing at a suitable frequency and where removal
 of underlying clayey soils is required (see Section 6), excavation and replacement following
 inspection by geotechnical engineer.
- No sand (either fill or natural) with low fines content (e.g. 'free draining') was encountered within the site.
- Reactive soils at shallow depth. Reactive, clayey soil within 1 m of the surface was encountered at three locations, which may require excavation to achieve finished surface level while maintaining the anticipated depth of 'free draining' sand.

The above described geotechnical constraints should be manageable following suitable design site preparation and hence, from a geotechnical standpoint, the subject land is considered to be capable of development for the proposed industrial subdivision, provided that the provisions outlined in the subsequent subsections of the report are taken into consideration, and recommendations are implemented.

7.2 Site Classification

Results of the field work and laboratory testing indicate that the clayey materials encountered across the site are generally moderately reactive. Owing to the variation in depth to the reactive materials, seasonal surface movements at the test locations are expected to vary from 0 mm (at location 10) to 30 mm (location 9), therefore corresponding to site classification equivalents of Class A, Class S and Class M. However, in accordance with AS 2870, the site in its current condition should be considered Class P owing to the uncontrolled fill.

Following suitable site preparation during earthworks (refer to Section 7.3) and assuming earthworks design is undertaken as outlined in Section 6, the site can be improved to achieve the following site classifications:

- Class A where a minimum thickness of 1.8 m of non-reactive granular sand is placed or exists between surface level and underlying clayey materials.
- Class S where a minimum thickness of 1.0 m of non-reactive granular sand is placed or exists between surface level and underlying clayey materials.

At locations 6, 7 and 9, where additional clearance to the underlying reactive soils from the existing site surface is required to improve site classification from M to S, achieving this is also possible via excavation and removal of underlying clayey soils to reduce the level of the reactive material. If this is undertaken, it is emphasised that the surface of the clayey material should be graded in such a way to



facilitate the horizontal movement of groundwater and prevent water from ponding on the surface of the clayey soils.

7.3 Site Preparation

7.3.1 Stripping

All topsoil, vegetation and deleterious material should be stripped from the site. The gravelly pavement materials encountered at locations 4 to 7 and Sand Clay fill (Unit 3A, location 6) should also be stripped and stockpiled to expose the underlying soil.

Tree roots remaining from any clearing operations should be completely removed, and the excavations backfilled with material of similar geotechnical properties to the surrounding ground and compacted to achieve a dry density ratio of not less than 95% relative to modified compaction for granular subgrade (i.e. sand) and 95% standard for cohesive (i.e. clayey) subgrade. Stripped topsoil can be stockpiled for later reuse in landscaping areas or potentially for blending with clean sand for re-use as structural fill.

7.3.2 Strip Inspection and Assessment of Uncontrolled Fill

Following surficial stripping, it is recommended the stripped areas are inspected by a geotechnical engineer. This will allow for:

- confirmation that topsoil, vegetation and deleterious material have been suitably removed; and
- · assessment of the uncontrolled fill, where it exists; and
- inspection of ground conditions prior to any fill placement.

Assessment of the uncontrolled fill is anticipated to comprise density testing using a PSP and a number of shallow test pits to visually assess the fill quality and depth. The results of the inspection will further guide where proof rolling efforts are required, where localised areas of ground improvement may be required and where the placement of fill or further earthworks can commence.

7.3.3 Proof Rolling and Compaction

Following surficial stripping and any earthworks cut, the site should be proof rolled using a heavy roller (14 tonne minimum deadweight). Any areas that show signs of excessive deformation during compaction should be continually compacted until deformation ceases or, alternatively, the poor quality material should be excavated and replaced with suitable structural filling compacted to achieve a dry density ratio of not less than 95% relative to modified compaction for granular subgrade (i.e. sand) and 95% relative to standard compaction for cohesive (i.e. clayey) subgrade.

The type of roller (smooth drum or padfoot) and the use of vibratory modes should be at the discretion of the earthworks contractor based on the distance to neighbouring structures or vibration sensitive services, the subgrade being compacted, the depth to groundwater, and the size and type of compaction plant. A smooth drum roller is preferred to compact sandy subgrade and a padfoot roller to compact clayey subgrade. The use of vibration is not recommended to compact clayey subgrade or where shallow groundwater is within the depth of influence of the roller.



Compaction control of sand fill and in situ sand could be carried out using a Perth sand penetrometer (PSP) test in accordance with test method AS 1289.6.3.3. It is suggested that the sand subgrade should be compacted to achieve a minimum blow count of 10 blows per 300 mm rod penetration to a depth of not less than 1.0 m below foundation level.

This compaction level has not been directly correlated to a dry density of 95% relative to modified compaction. Lower blow counts than the above level may be acceptable provided that a correlation between Perth sand penetrometer (PSP) test and dry density ratio has been established by a NATA accredited laboratory and following review by a geotechnical engineer.

It is recommended that compaction control of clayey materials underlying proposed lots can be carried out with a dynamic cone penetrometer (DCP) in accordance with AS 1289.6.3.2 and any clayey subgrade underlying proposed road pavement should be tested using a nuclear surface moisture-density gauge, in accordance with AS 1289.5.8.1.

7.3.4 Excavation Conditions and Groundwater

Excavation to depths of at least 2.5 m should be readily achievable using standard earthmoving equipment (i.e. 8 tonne excavator or heavier).

Previous investigations adjacent to this site for earlier stages of the development have encountered occasional zones and pockets of cemented material and ironstone and similar conditions should not be entirely precluded at this site. Additionally, owing to the encountered it is considered possible that the weathered Muchea Limestone encountered at locations 5, 6 and 9 may exist in a stronger form elsewhere on the site.

Groundwater levels were recorded during the investigation works (December 2020) as shallow as 1.4 m below surface level. It is anticipated that shallower perched groundwater levels may be encountered during the wet months of the year, overlying the encountered shallow clay materials.

Proposed excavation depths are not known at the time of writing; however, it is anticipated that groundwater may impact earthworks, particularly if undertaken during the wet months of the year. Groundwater ingress into shallow excavations, if any, is anticipated to be seepage of perched water and as such, sump pumps within the base of excavations is anticipated to be sufficient to control groundwater.

7.3.5 Reuse of Existing Soils

Topsoil can be reused within landscaped areas or blended with a granular soil with low organic content (say less than 2%), to form a suitable material for use as structural fill. Confirmation of blend ratios will require testing of the proposed blending materials however a preliminary ratio of 1:3 (topsoil:sand) is suggested.

The sandy and gravelly fill materials (Unit 1) are considered generally suitable for reuse as structural fill, from a geotechnical perspective. Any oversized (greater than 150 mm) particles or any other deleterious material observed during excavation should be removed and the remaining material stockpiled separately for inspection by a geotechnical engineer prior to reuse. The fill contains variable fines content and is not considered to be 'free draining'.



It is emphasised the that re-use of the uncontrolled fill will also be dependent on the results of the preliminary contamination investigation undertaken by Douglas Partners, and included in DP's document referenced 88698.45.R.001.Rev0.

The natural sand at the site (Unit 2) is suitable for reuse as non-reactive structural fill. Owing to an average fines content typically between 5% and 10%, it is not considered to be 'free draining'.

The clayey fill (location 6) and natural clayey soil (Units 3 and 3A) can be reused as structural fill, however the effect of the reactive and cohesive soils on site classification and site drainage should be considered prior to reuse. Due to the variability of the clayey material across the site it is suggested that that proposed reuse of clayey soils is assessed on a case by case basis by a geotechnical engineer.

7.4 Foundation Design

Shallow foundation systems comprising slab, pad and strip footings should be suitable to support typical one and two storey buildings and typical industrial warehouse structures.

Footings of buildings covered by AS 2870-2011 should be designed to satisfy the requirements of this standard for the site classification discussed in Section 7.2, provided that site preparation is carried out in accordance with Section 7.3.

If a proposed building is not covered by AS 2870-2011 then the foundation should be designed using engineering principles. The table below summarises preliminary allowable bearing pressures for pad and strip footings founded at 0.5 m deep, however as earthworks details are not known at the time of writing (e.g. how much fill will be placed above clayey soils), it is suggested that the figures in the table below are considered to be lower bound. It is anticipated that higher allowable bearing pressures will be possible following earthworks of the site.

Table 5: Estimated Settlement of Square Pad and Strip Footings

Footing Width (m)	Allowable Bearing Capacity (kPa)			
Square pad footings				
0.5	160			
1.0	150			
1.5	140			
2.0	130			
Strip footings				
0.5	130			
0.75	120			
1.0	110			



Total settlements for the above tabulated footing configurations are estimated to be less than 10 mm. Differential settlements are likely to be less than half of the total settlement, therefore, less than 5 mm.

7.5 Pavement Design Parameters

Based on our experience with the earthworks design concept in previous stages of the Roe Highway Logistics Park, subgrade for the proposed pavement is likely to comprise sand fill. Owing to the lack of 'free draining' material encountered on site, the fill is likely to be imported sand.

A subgrade CBR design value suitable for the imported material will apply for the pavement design. A CBR of 12% is suggested at this stage for typical imported sand, provided that the subgrade is compacted achieve a dry density ratio of not less than 95% relative to modified compaction.

A design value of 12% is also considered suitable for any pavement founded on natural sand encountered at the site (Unit 1), provided at least 1 m of sand, at a density of not less than 95% is present below the pavement. Where pavement is founded on sand subgrade of a thickness of less than 1 m (above underlying clayey soils), a lower design CBR value should be adopted. Douglas Partners can provide further advice in this regard, if required.

It is emphasised that particular care should be exercised in implementing a suitable drainage strategy for the proposed roads to prevent water ingress into pavement layers.

7.6 Soil Permeability

It is understood that the earthworks strategy will likely involve placement of approximately 0.8 m, or more, of 'free draining' sand at the surface of the finished lots, underlain by natural soils, generally comprising sand over clayey soil.

As per Section 4.3, in situ permeability testing was undertaken to categorise the permeability of the different soil types encountered at the site. The result of the testing within the sandy clay at location 5 (0.03 m/day) and silty sand at location 11 (1.3 m/day) are considered to be reflective of the permeability in those soil types.

The results of the testing at location 9 is not considered representative of typical drainage conditions for clayey sand. Further testing to categorise the natural clayey sand is suggested for future phases of investigation at this site.

Therefore, based on the information currently available, including our experience from previous investigations adjacent to this site and assuming some densification of the site soils during earthworks, the following permeability values are suggested:

- Natural Sand with silt/clay 0.8 x 10⁻⁵ m/s (1.0 m/day);
- Clayey sand 6 x 10⁻⁶ m/s (0.5 m/day); and
- Sandy clay 3 x 10⁻⁷ m/s (0.025 m/day).



Regular maintenance of the infiltration systems is recommended to minimise the possible long-term impact of siltation and bio build up on the systems performance.

8. References

AS 1289. (2014). Methods of testing soils for engineering purposes. Standards Ausralia.

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Department of Environment. (2004). Perth Groundwater Atlas, Second Edition.

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9. Limitations

Douglas Partners (DP) has prepared this report for this project at Lots 4, 10, 12, 14, 15, 21, 22 and 23 Courtney Place, in Wattle Grove, WA in accordance with DP's proposal PER200415.Rev1 dated 9 November 2020 and acceptance received from Hesperia Pty Ltd. The work was carried out as a variation to the Professional Services Agreement RHLP/DP0001. This report is provided for the exclusive use of for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.



The assessment of atypical safety hazards arising from this advice is restricted to the (geotechnical / environmental / groundwater) components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The scope for work for this investigation/report did not include the assessment of surface or sub-surface materials or groundwater for contaminants, within or adjacent to the site. Should evidence of filling of unknown origin be noted in the report, and in particular the presence of building demolition materials, it should be recognised that there may be some risk that such filling may contain contaminants and hazardous building materials.

Douglas Partners Pty Ltd

Appendix A

About This Report

About this Report Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

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This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

 In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes.
 They may not be the same at the time of construction as are indicated in the report;
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions.
 The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Sampling Methods Douglas Partners The sample of the samp

Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thinwalled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the insitu soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low

reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

 In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:

> 4,6,7 N=13

 In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:

15, 30/40 mm

Sampling Methods

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Soil Descriptions Douglas Partners

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are generally based on Australian Standard AS1726:2017, Geotechnical Site Investigations. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Туре	Particle size (mm)	
Boulder	>200	
Cobble	63 - 200	
Gravel	2.36 - 63	
Sand	0.075 - 2.36	
Silt	0.002 - 0.075	
Clay	<0.002	

The sand and gravel sizes can be further subdivided as follows:

Туре	Particle size (mm)	
Coarse gravel	19 - 63	
Medium gravel	6.7 - 19	
Fine gravel	2.36 – 6.7	
Coarse sand	0.6 - 2.36	
Medium sand	0.21 - 0.6	
Fine sand	0.075 - 0.21	

Definitions of grading terms used are:

- Well graded a good representation of all particle sizes
- Poorly graded an excess or deficiency of particular sizes within the specified range
- Uniformly graded an excess of a particular particle size
- Gap graded a deficiency of a particular particle size with the range

The proportions of secondary constituents of soils are described as follows:

In fine grained soils (>35% fines)

in line grained soils (200% lines)				
Term	Proportion	Example		
	of sand or			
	gravel			
And	Specify	Clay (60%) and		
		Sand (40%)		
Adjective	>30%	Sandy Clay		
With	15 – 30%	Clay with sand		
Trace	0 - 15%	Clay with trace		
		sand		

In coarse grained soils (>65% coarse)

- with clavs or silts

- Willi Clays Or Sills				
Term	Proportion	Example		
	of fines			
And	Specify	Sand (70%) and Clay (30%)		
Adjective	>12%	Clayey Sand		
With	5 - 12%	Sand with clay		
Trace	0 - 5%	Sand with trace		
		clay		

In coarse grained soils (>65% coarse)

- with coarser fraction

- With Coarser fraction				
Term	Proportion	Example		
	of coarser			
	fraction			
And	Specify	Sand (60%) and		
		Gravel (40%)		
Adjective	>30%	Gravelly Sand		
With	15 - 30%	Sand with gravel		
Trace	0 - 15%	Sand with trace		
		gravel		

The presence of cobbles and boulders shall be specifically noted by beginning the description with 'Mix of Soil and Cobbles/Boulders' with the word order indicating the dominant first and the proportion of cobbles and boulders described together.

Soil Descriptions

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	VS	<12
Soft	S	12 - 25
Firm	F	25 - 50
Stiff	St	50 - 100
Very stiff	VSt	100 - 200
Hard	Н	>200
Friable	Fr	-

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	Density Index (%)
Very loose	VL	<15
Loose	L	15-35
Medium dense	MD	35-65
Dense	D	65-85
Very dense	VD	>85

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil derived from in-situ weathering of the underlying rock;
- Extremely weathered material formed from in-situ weathering of geological formations.
 Has soil strength but retains the structure or fabric of the parent rock;
- Alluvial soil deposited by streams and rivers;

- Estuarine soil deposited in coastal estuaries;
- Marine soil deposited in a marine environment;
- Lacustrine soil deposited in freshwater lakes;
- Aeolian soil carried and deposited by wind;
- Colluvial soil soil and rock debris transported down slopes by gravity;
- Topsoil mantle of surface soil, often with high levels of organic material.
- Fill any material which has been moved by man.

Moisture Condition – Coarse Grained Soils

For coarse grained soils the moisture condition should be described by appearance and feel using the following terms:

- Dry (D) Non-cohesive and free-running.
- Moist (M) Soil feels cool, darkened in colour.

Soil tends to stick together.

Sand forms weak ball but breaks easily.

Wet (W) Soil feels cool, darkened in colour.

Soil tends to stick together, free water forms when handling.

Moisture Condition – Fine Grained Soils

For fine grained soils the assessment of moisture content is relative to their plastic limit or liquid limit, as follows:

- 'Moist, dry of plastic limit' or 'w <PL' (i.e. hard and friable or powdery).
- 'Moist, near plastic limit' or 'w ≈ PL (i.e. soil can be moulded at moisture content approximately equal to the plastic limit).
- 'Moist, wet of plastic limit' or 'w >PL' (i.e. soils usually weakened and free water forms on the hands when handling).
- 'Wet' or 'w ≈LL' (i.e. near the liquid limit).
- 'Wet' or 'w >LL' (i.e. wet of the liquid limit).

Symbols & Abbreviations

Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia

NQ Diamond core - 47 mm dia HQ Diamond core - 63 mm dia PQ Diamond core - 81 mm dia

Water

Sampling and Testing

Α	Auger sample
В	Bulk sample
D	Disturbed sample
Ε	Environmental sample

U₅₀ Undisturbed tube sample (50mm)

W Water sample

pp Pocket penetrometer (kPa)
PID Photo ionisation detector
PL Point load strength Is(50) MPa
S Standard Penetration Test

V Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B Bedding plane
Cs Clay seam
Cv Cleavage
Cz Crushed zone
Ds Decomposed seam

F Fault
J Joint
Lam Lamination
Pt Parting
Sz Sheared Zone

V Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
٧	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
СО	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

ро	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

Symbols & Abbreviations

Graphic Symbols for Soil and Rock

General

0.000	

Asphalt



Road base



Concrete



Filling

Soils



Topsoil



Peat



Clay



Silty clay



Sandy clay



Gravelly clay



Shaly clay



Silt



Clayey silt



Sandy silt



Sand



Clayey sand



Silty sand



Gravel



Sandy gravel



Cobbles, boulders



Talus

Sedimentary Rocks



Boulder conglomerate



Conglomerate



Conglomeratic sandstone



Sandstone Siltstone



Laminite



Mudstone, claystone, shale



Coal



Limestone

Metamorphic Rocks



Slate, phyllite, schist



Gneiss



Quartzite

Igneous Rocks



Granite



Dolerite, basalt, andesite



Dacite, epidote



Tuff, breccia



Porphyry

Cone Penetration Tests

Partners P

Introduction

The Cone Penetration Test (CPT) is a sophisticated soil profiling test carried out in-situ. A special cone shaped probe is used which is connected to a digital data acquisition system. The cone and adjoining sleeve section contain a series of strain gauges and other transducers which continuously monitor and record various soil parameters as the cone penetrates the soils.

The soil parameters measured depend on the type of cone being used, however they always include the following basic measurements

•	Cone tip resistance	qc
•	Sleeve friction	f_s
•	Inclination (from vertical)	i
•	Depth below ground	Z

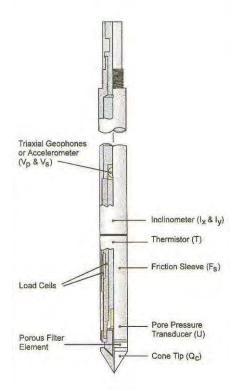


Figure 1: Cone Diagram

The inclinometer in the cone enables the verticality of the test to be confirmed and, if required, the vertical depth can be corrected.

The cone is thrust into the ground at a steady rate of about 20 mm/sec, usually using the hydraulic rams of a purpose built CPT rig, or a drilling rig. The testing is carried out in accordance with the Australian Standard AS1289 Test 6.5.1.



Figure 2: Purpose built CPT rig

The CPT can penetrate most soil types and is particularly suited to alluvial soils, being able to detect fine layering and strength variations. With sufficient thrust the cone can often penetrate a short distance into weathered rock. The cone will usually reach refusal in coarse filling, medium to coarse gravel and on very low strength or better rock. Tests have been successfully completed to more than 60 m.

Types of CPTs

Douglas Partners (and its subsidiary GroundTest) owns and operates the following types of CPT cones:

Туре	Measures
Standard	Basic parameters (qc, fs, i & z)
Piezocone	Dynamic pore pressure (u) plus basic parameters. Dissipation tests estimate consolidation parameters
Conductivity	Bulk soil electrical conductivity (σ) plus basic parameters
Seismic	Shear wave velocity (V _s), compression wave velocity (V _p), plus basic parameters

Strata Interpretation

The CPT parameters can be used to infer the Soil Behaviour Type (SBT), based on normalised values of cone resistance (Qt) and friction ratio (Fr). These are used in conjunction with soil classification charts, such as the one below (after Robertson 1990)

Cone Penetration Tests

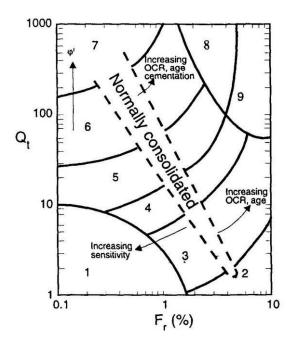


Figure 3: Soil Classification Chart

DP's in-house CPT software provides computer aided interpretation of soil strata, generating soil descriptions and strengths for each layer. The software can also produce plots of estimated soil parameters, including modulus, friction angle, relative density, shear strength and over consolidation ratio.

DP's CPT software helps our engineers quickly evaluate the critical soil layers and then focus on developing practical solutions for the client's project.

Engineering Applications

There are many uses for CPT data. The main applications are briefly introduced below:

Settlement

CPT provides a continuous profile of soil type and strength, providing an excellent basis for settlement analysis. Soil compressibility can be estimated from cone derived moduli, or known consolidation parameters for the critical layers (eg. from laboratory testing). Further, if pore pressure dissipation tests are undertaken using a piezocone, in-situ consolidation coefficients can be estimated to aid analysis.

Pile Capacity

The cone is, in effect, a small scale pile and, therefore, ideal for direct estimation of pile capacity. DP's in-house program ConePile can analyse most pile types and produces pile capacity versus depth plots. The analysis methods are based on proven static theory and empirical studies, taking account of scale effects, pile materials and method of installation. The results are expressed in limit state format, consistent with the Piling Code AS2159.

Dynamic or Earthquake Analysis

CPT and, in particular, Seismic CPT are suitable for dynamic foundation studies and earthquake response analyses, by profiling the low strain shear modulus G₀. Techniques have also been developed relating CPT results to the risk of soil liquefaction.

Other Applications

Other applications of CPT include ground improvement monitoring (testing before and after works), salinity and contaminant plume mapping (conductivity cone), preloading studies and verification of strength gain.

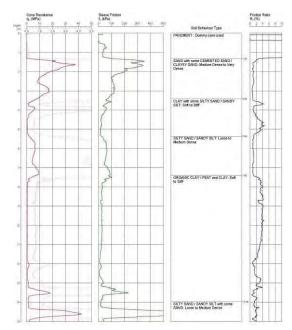
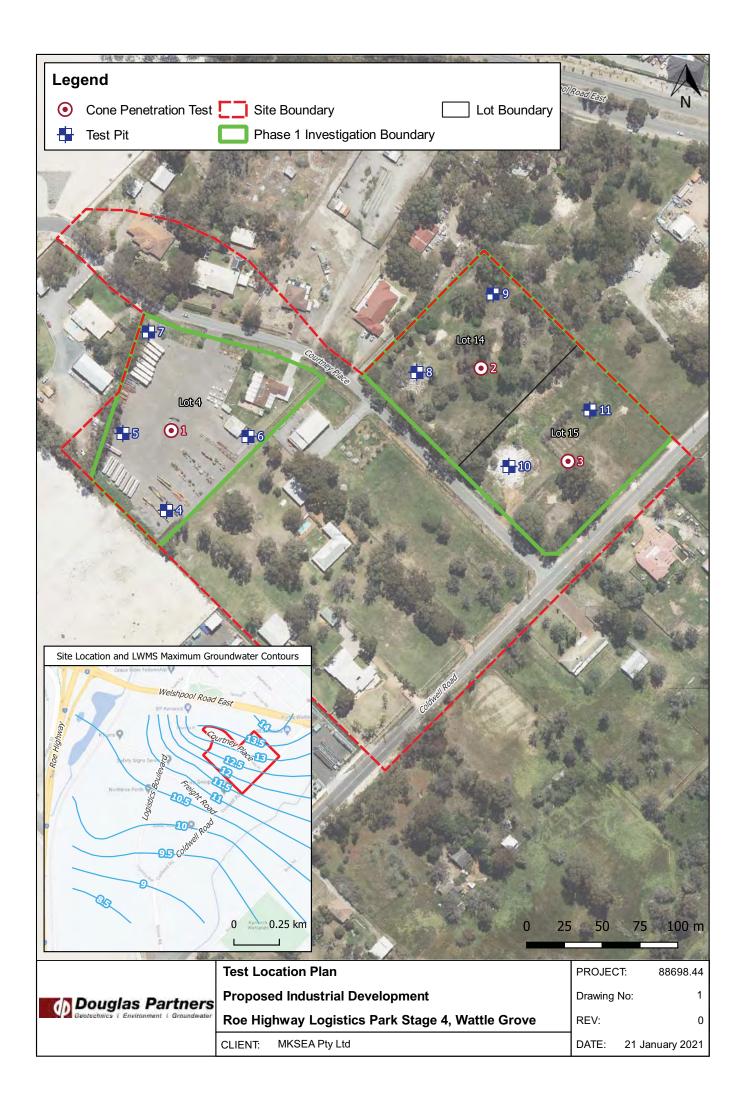


Figure 4: Sample Cone Plot

Appendix B

Test Location Plan Logs



0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11/12/2020 PROJECT No: 88698.44 CPT1 Page 1 of 1 DATE Friction Ratio R_f (%) 10.20 1.75 0.95 5.20 - becoming Very Stiff and Hard from 2.3 m depth SAND (inferred FILL): Very Dense becoming Loose. Trace gravel content. GRAVELLY PAVEMENT MATERIALS Bands of SANDY CLAY and CLAYEY SAND: Firm to Stiff CPT discontinued at 5.2 m (target) Soil Behaviour Type CLAY: Stiff to Very Stiff Courtney Place, Wattle Grove, WA 403866E 6458247N GDA94 15 9 13.1 Inclination i (°) REDUCED LEVEL: COORDINATES: LOCATION: Sleeve Friction f_s (kPa) -0.9 **CONE PENETRATION TEST** PROJECT: Proposed Industrial Subdivision Development 25 8-1-4 6-4-6-15 CLIENT: MKSEA Pty Ltd 9 Cone Resistance q_c (MPa) Depth (m)

File: P:\88698.44 - WATTLE GROVE, RHLP Stage 4 - GEO\4.0 Field Work\CPTs\DP\88698.44 - CPT1.CP5 Cone ID: Probedrill Type: EC28

Cone ID: Probedrill Type: EC28
ConePlot Version 5.9.2
© 2003 Douglas Partners Pty Ltd

REMARKS: Surface levels interpolated from publicly available LiDAR data



0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 Depth 11/12/2020 PROJECT No: 88698.44 CPT2 Page 1 of 1 DATE Friction Ratio R_f (%) 5.22 0.90 SILTY SAND (inferred FILL): Medium Dense SAND: Loose becoming Medium Dense Bands of CLAYEY SAND and SANDY CLAY: Generally Very Stiff to Hard Soil Behaviour Type CPT terminated at 5.2 m (target) Courtney Place, Wattle Grove, WA 404071E 6458288N GDA94 15 9 13.7 Inclination i (°) REDUCED LEVEL: COORDINATES: LOCATION: Sleeve Friction f_s (kPa) -0.9 **CONE PENETRATION TEST** PROJECT: Proposed Industrial Subdivision Development 25 8-1-4 6-4-6-15 CLIENT: MKSEA Pty Ltd 9 Cone Resistance q_c (MPa) Depth (m)

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Geotechnics | Environment | Groundwater File: P:\88698.44 - WATTLE GROVE, RHLP Stage 4 - GEO\4.0 Field Work\CPTs\DP\88698.44 - CPT2.CP5
Cone ID: Probedrill Type: EC28 REMARKS: Surface levels interpolated from publicly available LiDAR data

ConePlot Version 5.9.2 © 2003 Douglas Partners Pty Ltd

0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11/12/2020 PROJECT No: 88698.44 CPT3 Page 1 of 1 DATE Friction Ratio R_f (%) 1.45 5.22 0.90 SAND (possible FILL): Medium Dense to Very Dense Bands of CLAYEY SAND and SANDY CLAY: Hard Soil Behaviour Type SAND: Loose to Medium Dense CPT terminated at 5.2 m (target) Courtney Place, Wattle Grove, WA 404128E 6458227N GDA94 15 9 13.8 Inclination i (°) REDUCED LEVEL: COORDINATES: 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 LOCATION: Sleeve Friction f_s (kPa) -0.9 **CONE PENETRATION TEST** PROJECT: Proposed Industrial Subdivision Development 25 8-1-4 6-4-6-15 CLIENT: MKSEA Pty Ltd 9 Cone Resistance q_c (MPa) Depth (m)

Douglas Partners

Geotechnics | Environment | Groundwater File: P:\88698.44 - WATTLE GROVE, RHLP Stage 4 - GEO\4.0 Field Work\CPTs\DP\88698.44 - CPT3.CP5
Cone ID: Probedrill
Type: EC28

ConePlot Version 5.9.2 © 2003 Douglas Partners Pty Ltd

REMARKS: Surface levels interpolated from publicly available LiDAR data



MKSEA Pty Ltd CLIENT:

PROJECT: Proposed RHLP Stage 4

LOCATION: Courtney Place, Wattle Grove, WA

SURFACE LEVEL: 13.1 m AHD PIT No: 4

PROJECT No: 88698.44 EASTING: 403863 **NORTHING**: 6458194 **DATE:** 11/12/2020 SHEET 1 OF 1

		Depth (m)	Description		Sampling & In Situ Testing				L	Dynamic Penetrometer Test		
묍	Dept (m)			Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Per (blows p		
12 13	- - (.25- 0.4- 0.6-	FILL / Sandy GRAVEL GP-GM: fine to coarse sized, grey-brown, fine to medium grained sand, with silt, dry to moist, estimated dense. Gravel is granitic, lateritic and possible basalt. FILL / SAND SP-SM: fine to medium grained, brown, with silt, dry to moist, medium dense to dense, fill. SAND SP-SM: fine to medium grained, grey, with silt, moist, medium dense. - becoming pale grey and trace silt (SP) from 0.5 m depth. SAND SP-SC: fine to medium grained, yellow-brown, with clay, moist to wet, medium dense.	E	0.3 0.35 0.55 0.6 0.75 0.8	0.3 0.35 0.55 0.6 0.75 0.8		>				
- 11	- - -2 -	1.6-	Clayey SAND SC: fine to medium grained, grey mottled red-brown and yellow-brown, trace gravel. moist to wet, estimated stiff.									
-	2.2	r	Sandy CLAY CI: medium plasticity, grey mottled red-brown and yellow-brown, w > PL, stiff.			2.3		PP = 150 kPa				
	- 2	2.5	Pit discontinued at 2.5m (target)	•								





RIG: 8 tonne backhoe with 450 mm toothed bucket

WATER OBSERVATIONS: Seepage observed at 1.4 m depth.

REMARKS: Surface level interpolated from publicly available LiDAR data

 Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SURVEY DATUM: MGA94 Zone 50

| SAMPLING & IN SITU TESTING LEGEND | G | Gas sample | P|D | Photo | P|D | Photo | Pho A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

G LEGEND
PID Photo ionisation detector (ppm)
PL(A) Point load axial test Is(50) (MPa)
PL(D) Point load diametral test Is(50) (MPa)
pp Pocket penetrometer (kPa)
S Standard penetration test
V Shear vane (kPa)



MKSEA Pty Ltd CLIENT:

PROJECT: Proposed RHLP Stage 4 LOCATION: Courtney Place, Wattle Grove, WA **SURFACE LEVEL:** 13.0 m AHD **PIT No:** 5

PROJECT No: 88698.44 **EASTING**: 403834 **NORTHING**: 6458245 **DATE:** 11/12/2020 SHEET 1 OF 1

			Description	je.		Sam	npling	& In Situ Testing	_	Dynamic Penetrometer Test			
3 RL		Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynam (blo	ows pe	tromet r 150m	er l'est m)
-	-	0.35	FILL / Sandy GRAVEL GP-GM: fine to coarse sized, grey-brown, fine to medium grained sand, with silt, dry to moist, estimated dense. Gravel is granitic, lateritic, possible basalt, asphalt, concrete. - Wire pieces observed at 0.35 m depth.		E	0.2 0.35 0.4				-			
-	-	0.45	SAND SP-SM: fine to medium grained, grey-brown, with silt, moist, possible fill.			0.4				لم ا			
12	- - - -1	0.95	SAND SP-SM: fine to medium grained, pale yellow-brown, with silt, moist, medium dense. - becoming pale grey and trace gravel from 0.75 m depth.		E_	0.85 0.9				- -			
-	-		Sandy CLAY CI: medium plasticity, yellow-brown, w > PL, stiff.							-			
-	-					1.5		PP = 150 kPa		-			
	- -2 -	2	 - becoming firm to stiff and pale yellow from 1.8 m depth - with gravel from 2 m depth 			2.0		PP = 100 kPa		-2 -			
-	-	2.5	- becoming brown mottled red-brown, trace fine gravel and stiff from 2.3 m depth.							-			
		2.5	Pit discontinued at 2.5m (target)								:		





RIG: 8 tonne backhoe with 450 mm toothed bucket

WATER OBSERVATIONS: No groundwater observed

REMARKS: Surface level interpolated from publicly available LiDAR data

 Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SURVEY DATUM: MGA94 Zone 50

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Sas sample
P Piston sample
U, Tube sample (x mm dia)
W Water sample
e D Water seep
sample
W Water level

Water seep
S Standard penetration test
V Shear vane (kPa)



MKSEA Pty Ltd CLIENT:

PROJECT: Proposed RHLP Stage 4

LOCATION: Courtney Place, Wattle Grove, WA

SURFACE LEVEL: 13.3 m AHD PIT No: 6

PROJECT No: 88698.44 **EASTING**: 403917 **NORTHING**: 6458243 **DATE:** 11/12/2020 SHEET 1 OF 1

			Description	oje.		Sam		& In Situ Testing	_	D : D : T :
RL		epth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 150mm) 5 10 15 20
13	-	0.2	FILL / Sandy GRAVEL GP-GM: fine to coarse sized, grey-brown, fine to medium grained sand, with silt, dry to moist, estimated dense. Gravel is granitic, lateritic and possible basalt.			0.35				
		0.5	FILL / SAND SP-SM: fine to medium grained, \[\grey-brown and pale yellow, with silt, moist, fill. \]		_E_/	0.4				
-	-	0.8	FILL / Sandy CLAY CI: medium plasticity, brown, trace gravel, w > PL, stiff.							``
-	- -1		Sandy CLAY CH: high plasticity, pale yellow, trace fine gravel, w = PL, firm to stiff.		D & E,	0.9 0.95		PP = 100 kPa		- -1]
12 ' '	- - - -		- medium plasticity (CI) and with gravel from 1.6 m depth]
-	-2 -				D	2.0			>	-2
-11	-	2.5	Clayey SAND SC: fine to medium grained, brown mottled red-brown, medium plasticity fines, moist, very stiff.			2.4		PP = 300 kPa		
			Pit discontinued at 2.5m (target)							





RIG: 8 tonne backhoe with 450 mm toothed bucket

WATER OBSERVATIONS: Seepage observed at 2.1 m depth.

REMARKS: Surface level interpolated from publicly available LiDAR data

 Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SURVEY DATUM: MGA94 Zone 50

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Sas sample
P Piston sample
U, Tube sample (x mm dia)
W Water sample
e D Water seep
sample
W Water level

Water seep
S Standard penetration test
V Shear vane (kPa)



MKSEA Pty Ltd CLIENT:

PROJECT: Proposed RHLP Stage 4 LOCATION: Courtney Place, Wattle Grove, WA SURFACE LEVEL: 13.2 m AHD PIT No: 7

PROJECT No: 88698.44 EASTING: 403851 **NORTHING**: 6458312 **DATE:** 11/12/2020 SHEET 1 OF 1

	_		Description	ji		San		& In Situ Testing	L	D : D : T :
R		epth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 150mm) 5 10 15 20
13	-		FILL / Sandy GRAVEL GP-GM: fine to coarse sized, grey-brown, fine to medium grained sand, with silt, dry to moist, estimated dense. Gravel is granitic, lateritic and possible basalt.		E	0.3 0.35				-
-	-	0.4 0.5	SAND SP-SM: fine to medium grained, brown, with silt, dry to moist, medium dense to dense, possible fill. Roots observed to 0.25 m.	///	D & E,	0.45				
		0.75	SAND SP-SM: fine to medium grained, pale brown, with silt, moist, medium dense.	6/6		0.03				
	- 1 - 1	1.1	Clayey SAND SC: fine to medium grained, yellow-brown, moist, stiff.							-1
12	-		Gravelly clayey SAND SC: fine to medium grained, yellow-brown, fine to medium sized granitic, angular and subangular gravel. moist, stiff.			1.2		PP = 150 kPa		
-	-		Sandy CLAY CI: medium plasticity, brown, w > PL, stiff.							
-11	-2 - - -		- trace fine to coarse gravel from 2.0 m depth.			2.0		PP = 150 kPa		-2
-	L	2.5	Pit discontinued at 2.5m (target)	[





RIG: 8 tonne backhoe with 450 mm toothed bucket

WATER OBSERVATIONS: No groundwater observed

REMARKS: Surface level interpolated from publicly available LiDAR data

 Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SURVEY DATUM: MGA94 Zone 50

SAMPLING & IN SITU TESTING LEGEND

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample G & IN SITU TESTING
Gas sample
Piston sample
Tube sample (x mm dia.)
Water sample
Water seep
Water level

G LEGEND
PID Photo ionisation detector (ppm)
PL(A) Point load axial test Is(50) (MPa)
PL(D) Point load diametral test Is(50) (MPa)
pp Pocket penetrometer (kPa)
S Standard penetration test
V Shear vane (kPa)



MKSEA Pty Ltd CLIENT:

PROJECT: Proposed RHLP Stage 4 LOCATION: Courtney Place, Wattle Grove, WA SURFACE LEVEL: 14.4 m AHD PIT No: 8

PROJECT No: 88698.44 EASTING: 404028 **NORTHING**: 6458286 **DATE:** 11/12/2020 SHEET 1 OF 1

	Б "	Description	je _		Sam		& In Situ Testing		Dum	amic Per	 or Toot
RL	Depth (m)	of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water		(blows po	
-	-	FILL / SAND SP-SM: fine to medium grained, grey, with silt, dry, loose to medium dense, with bands of SAND, trace silt (SP). Fragments of bluemetal, granite gravel, concrete, tiles and PVC plastic observed within surficial		E	0.15				-		
-14	- - -	part of fill.		D	0.5				-		
-		- becoming medium dense from 0.75 m depth.		E	0.8				\ _	¬ :	
-	-1 1.0 - -	SAND SP-SM: fine to medium grained, brown, with silt, moist, medium dense.							-1	1	
-13	1.45· - -	Sandy CLAY CI: medium plasticity, brown, w > PL, stiff.		D	1.5 1.6		PP = 100 kPa				
	- 2 - 2 	- trace fine to coarse gravel from 2.0 m depth.			2.0		PP = 200 kPa		-2		
- 12	- - - 2.7							>	-		
	,	Pit discontinued at 2.7m (target)									



RIG: 8 tonne backhoe with 450 mm toothed bucket LOGGED: DJB SURVEY DATUM: MGA94 Zone 50

WATER OBSERVATIONS: Seepage observed at 2.5 m depth.

REMARKS: Surface level interpolated from publicly available LiDAR data

 Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample
V Tube sample (x mm dia.)
W Water sample
W Water seep
S S Standard penetration test
SAMPLING & IN SITU TESTING LEGEND
PL(A) Point load axial test Is(50) (MPa)
PL(D) Point load diametral test Is(50) (MPa)
PD Pocket penetrometer (kPa)
S Standard penetration test
S Shear vane (kPa)



MKSEA Pty Ltd CLIENT:

PROJECT: Proposed RHLP Stage 4 LOCATION: Courtney Place, Wattle Grove, WA SURFACE LEVEL: 14.0 m AHD PIT No: 9

PROJECT No: 88698.44 EASTING: 404079 **NORTHING**: 6458337 **DATE:** 11/12/2020 SHEET 1 OF 1

	_		Description	ji		Sam		& In Situ Testing	L	D . D T .
R		epth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 150mm) 5 10 15 20
-	-	0.1	TOPSOIL / SAND SP-SM: fine to medium grained, black-brown, with silt, dry, with rootlets.	XX	E	0.15				1
	_	0.3	SAND SP-SM: fine to medium grained, brown, with silt, dry, dense.	///	Е	0.4				
-	-	0.5	Clayey SAND SC: fine to medium grained, yellow-brown, approximately 30% low plasticity fines, trace gravel, dry, hard/dense.		1					5 5
13	- - -1	0.9	Gravelly clayey SAND SC: fine to medium grained, pale brown mottled red-brown, fine to coarse lateritic gravel, dry, hard/dense.			1.0		PP = 250 kPa		-1
-	-		Sandy CLAY CL: low to medium plasticity, brown, fine to medium grained sand, with fine gravel, w < PL, very stiff.							
-	-		- becoming pale brown-white and firm to stiff from 1.3 m depth			1.5		PP = 100 kPa		
-	-									
12	- -2 -	2.0	Gravelly sandy SILT ML: low plasticity, white, fine to							-2
	-		coarse, subangular quartz gravel, fine to medium grained sand, w = PL.		D	2.4				
-	_	2.5	Pit discontinued at 2.5m (target)	1°43		2.1				





RIG: 8 tonne backhoe with 450 mm toothed bucket

WATER OBSERVATIONS: No groundwater observed

REMARKS: Surface level interpolated from publicly available LiDAR data

 Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SURVEY DATUM: MGA94 Zone 50

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Sas sample
P Piston sample
U, Tube sample (x mm dia)
W Water sample
e D Water seep
sample
W Water level

Water seep
S Standard penetration test
V Shear vane (kPa)



MKSEA Pty Ltd CLIENT:

Proposed RHLP Stage 4 PROJECT:

LOCATION: Courtney Place, Wattle Grove, WA

SURFACE LEVEL: 14.3 m AHD **PIT No:** 10

PROJECT No: 88698.44 **EASTING**: 404089 **NORTHING**: 6458223 **DATE:** 11/12/2020

SHEET 1 OF 1

		Description	ie		San	npling	& In Situ Testing	_	
RL	Depth (m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per 150mm)
	- - - - - - - -	FILL / SAND SP-SM: fine to medium grained, grey, with silt, dry, medium dense to dense. Fine to coarse gravel sized fragments of brick, tile, glass, PVC plastic, wires, wood and concrete observed within surficial part of fill.		E	0.1				
13	- 1.1 - -	SAND SP-SM: fine to medium grained, brown, with silt, moist.		D	1.3				
	- - - - 2	- becoming yellow-brown from 1.6 m depth.		D	1.7				-2
12 .	-								
	- 2.9	Pit discontinued at 2.5m (target)							





RIG: 8 tonne backhoe with 450 mm toothed bucket

WATER OBSERVATIONS: No groundwater observed

REMARKS: Surface level interpolated from publicly available LiDAR data

 Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SURVEY DATUM: MGA94 Zone 50

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Gas sample
P Piston sample (x mm dia.)
U Tube sample (x mm dia.)
W Water sample
e D Water seep
sample
W Water level
V Shear vane (kPa)



MKSEA Pty Ltd CLIENT:

PROJECT: Proposed RHLP Stage 4 LOCATION: Courtney Place, Wattle Grove, WA SURFACE LEVEL: 14.0 m AHD PIT No: 11

PROJECT No: 88698.44 **EASTING**: 404143 **NORTHING:** 6458260 **DATE:** 11/12/2020 SHEET 1 OF 1

			Description	ji _		Sam		& In Situ Testing	_		, a a a a a a a	. Dono		tor Toot
R		epth m)	of	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	ру	(blo	ws per	150m	ter Test m)
4			Strata		<u> </u>	ŏ	Sa	Comments			5	10	15	20
-	-	0.3	FILL / Silty gravelly SAND SM: fine to medium grained, black-brown, with silt, dry, with rootlets.		E	0.15				<u> </u>				
			Silty SAND SM: fine to medium grained, brown, approximately 15% non-plastic fines, dry, medium dense.		E	0.35 0.4 0.5 0.55				-1 - 1				
	-	1.3-	Gravelly clayey SAND SC: fine to medium grained, brown mottled yellow-brown, fine to medium sized gravel, medium plasticity fines, moist to wet.		D	1.5			>	-2				
	-	2.1	Sandy CLAY CI: medium plasticity, blue-green, fine to medium grained sand, w = PL, very stiff.			2.2		PP = 350 kPa		-				
_	-	2.5	Clayey SAND SC: fine to medium grained, blue-green, moist, very stiff. Pit discontinued at 2.5m (target)	<u> [/v. /:</u>										





RIG: 8 tonne backhoe with 450 mm toothed bucket

WATER OBSERVATIONS: Seepage observed at 2.0 m depth.

REMARKS: Surface level interpolated from publicly available LiDAR data

 Sand Penetrometer AS1289.6.3.3 ☐ Cone Penetrometer AS1289.6.3.2

SURVEY DATUM: MGA94 Zone 50

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

SAMPLING & IN SITU TESTING LEGEND

G Sas sample
P Piston sample
U, Tube sample (x mm dia)
W Water sample
e D Water seep
sample
W Water level

Water seep
S Standard penetration test
V Shear vane (kPa)



Appendix C

Laboratory Results



SOIL AGGREGATE CONCRETE	CRUSHING
TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3.	.1 & 3.4.1
MKSEA Pty Ltd	Ticket No. S2214
-	Report No. WG20/11695_1_PI
Proposed RHLP Stage 4	Sample No. WG20/11695
Wattle Grove WA	Date Sampled: 11-12-2020
6 0.9m	Date Tested: 17-12-2020
	TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.3 MKSEA Pty Ltd - Proposed RHLP Stage 4 Wattle Grove WA

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received

History of Sample: Oven Dried <50°C Method of Preparation: Dry Sieved

AS 1289.3.1.1	Liquid Limit (%)	57
AS 1289.3.2.1	Plastic Limit (%)	16
AS 1289.3.3.1	Plasticity Index (%)	41
AS 1289.3.4.1	Linear Shrinkage (%)	14.5
AS 1289.3.4.1	Length of Mould (mm)	250

Condition of Dry Specimen:

Comments:

Approved Signatory:

AS 1289.3.4.1

Name: Matt van Herk

Date: 19-December-2020

Accreditation No. 20599
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Curled

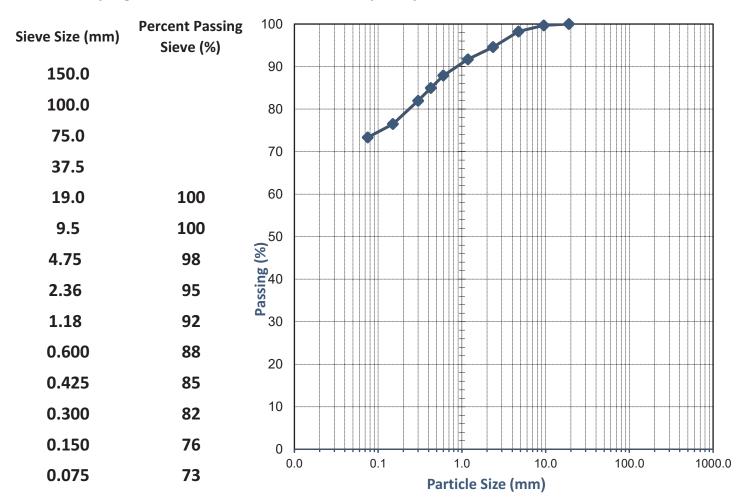


	soil	AGGREGATE		CONCRETE	CRUSH	IING
		TEST RE	PORT	- AS 1289.3.6.1		
Client:	MKSEA I	Pty Ltd			Ticket No.	S2214
Client Address:	-				Report No.	WG20/11695_1_PSD
Project:	Propose	d RHLP Stage 4			Sample No.	WG20/11695
Location:	Wattle 0	Grove WA			Date Sampled:	11-12-2020
Sample Identification	n: 6 0.9m				Date Tested:	16/12-17/12/2020

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Pant,

Name: Brooke Elliott

Date: 18-December-2020



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WG_AS 1289.3.6.1_TR_2



	SOIL AGGREGATE CONCRETI	E CRUSHING
	TEST REPORT - AS 1289.3.1.1, 3.2.1, 3.	3.1 & 3.4.1
Client:	MKSEA Pty Ltd	Ticket No. S2214
Client Address:	-	Report No. WG20/11696_1_PI
Project:	Proposed RHLP Stage 4	Sample No. WG20/11696
Location:	Wattle Grove WA	Date Sampled: 11-12-2020
Sample Identification:	9 0.4m	Date Tested: 17-12-2020

TEST RESULTS - Consistency Limits (Casagrande)

Sampling Method: Sampled by Client, Tested as Received

Oven Dried <50°C **History of Sample: Method of Preparation: Dry Sieved**

AS 1289.3.1.1	Liquid Limit (%)	26
AS 1289.3.2.1	Plastic Limit (%)	12
AS 1289.3.3.1	Plasticity Index (%)	14
AS 1289.3.4.1	Linear Shrinkage (%)	4.0

Length of Mould (mm) AS 1289.3.4.1 250

Condition of Dry Specimen: Cracked, Curled AS 1289.3.4.1

Comments:

Approved Signatory:

Name: Matt van Herk Date: 19-December-2020

Accreditation No. 20599 Accredited for compliance WORLD RECOGNISED with ISO/IEC 17025 - Testing

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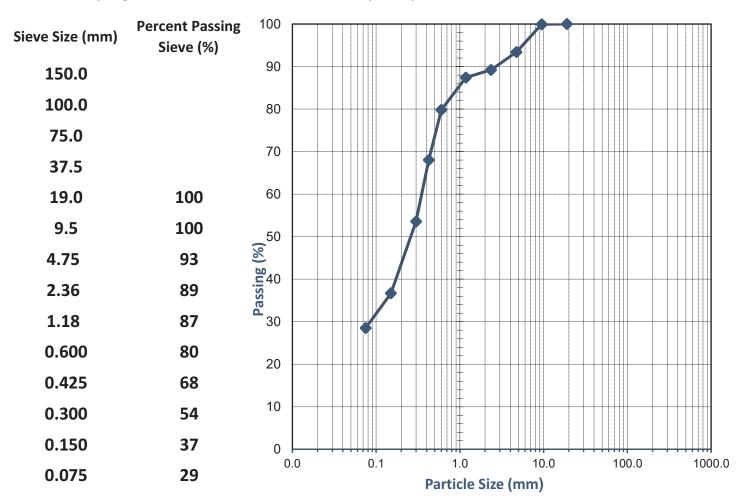


	SOIL	AGGREGATE	CONCRETE	CRUSH	IING
		TEST REP	ORT - AS 1289.3.6.1		
Client:	MKSEA P	ty Ltd		Ticket No.	S2214
Client Address:	-			Report No.	WG20/11696_1_PSD
Project:	Proposed	RHLP Stage 4		Sample No.	WG20/11696
Location:	Wattle G	rove WA		Date Sampled:	11-12-2020
Sample Identification	n: 9 0.4m			Date Tested:	16/12-17/12/2020

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Rank

Name: Brooke Elliott

Date: 18-December-2020



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Page 1 of 1

WG_AS 1289.3.6.1_TR_2

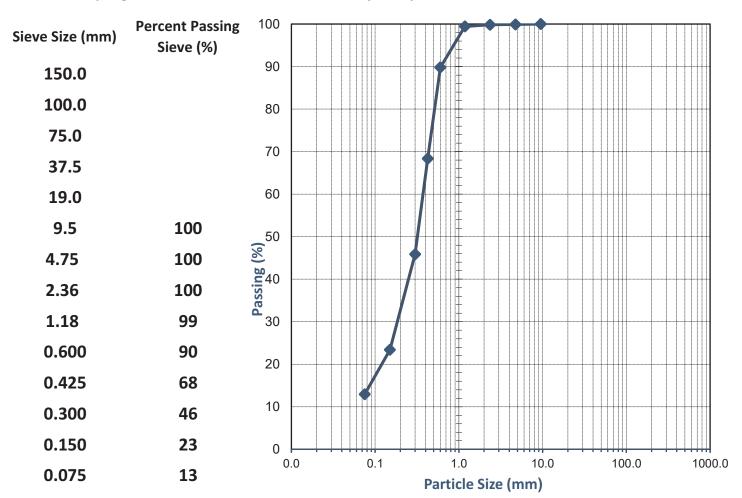


	soil aggregate	CONCRETE CRUSH	HING
	TEST REPORT -	- AS 1289.3.6.1	
Client:	MKSEA Pty Ltd	Ticket No.	S2214
Client Address:	-	Report No.	WG20/11697_1_PSD
Project:	Proposed RHLP Stage 4	Sample No.	WG20/11697
Location:	Wattle Grove WA	Date Sampled:	11-12-2020
Sample Identificati	on: 11 0.35-0.4m	Date Tested:	16/12-17/12/2020

TEST RESULTS - Particle Size Distribution of Soil

Sampling Method:

Sampled by Client, Tested as Received



Comments:

Approved Signatory:

Patrit

Name: Brooke Elliott

Date: 18-December-2020



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Factual Report on Geotechnical Investigations

Proposed Industrial Subdivision Coldwell Road, Kenwick

Prepared for Linc Property Pty Ltd

Project 88698.07 August 2016



Integrated Practical Solutions



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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Date		
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Appendix A: About This Report

Appendix B Drawing



Factual Report on Geotechnical Investigations Proposed Industrial Subdivision Coldwell Road, Kenwick

1. Introduction

This factual report presents the results of geotechnical investigations undertaken by Douglas Partners Pty Ltd for a proposed industrial subdivision within the proposed Maddington Kenwick Strategic Employment Area (MKSEA) in Kenwick, WA. The investigations were commissioned in several emails dated 5 January, 20 April and 5 July 2016 by Mr Ben Lisle and Mr Brett Chivers of Linc Property Pty Ltd, and was undertaken in accordance with Douglas Partners' proposals PER150614(Rev1) dated 18 December 2015 and PER160163 (Rev1) dated 20 April 2016.

The purpose of the investigations was to assess the subsurface conditions beneath the proposed development areas as described in Section 2, and thus provide factual information to Linc Property Pty Ltd in order to assist in the planning and the civil design of the proposed development.

The geotechnical investigations included the excavation of 127 test pits, seven in-situ permeability test and laboratory testing of selected samples.

2. Site Description

The proposed development area comprises 27 individual allotments with a combined area of approximately 50 ha (Refer to Drawing 1, Appendix B). It is bounded by Coldwell Road and Yule Brook to the southeast, Edward Street, rural properties and a proposed PTA Rail Infrastructure Facility area to the southwest and northwest, and rural properties and Welshpool Road East to the north and northwest.

At the time of the geotechnical investigations, the proposed development area comprised farmland and associated farm buildings, with Lot 501 (No.92) Grove Road being used as a turf farm. Grove Road crossed the site at its centre in a northwest-southeast direction. Vegetation generally consisted of short pasture grass, tall grass and reeds and lawn areas, with some bushes and trees up to approximately 15 m in height.

The ground surface level falls to approximately RL 10 m at the south western corner of the site, from a high point of approximately RL 15.0 m at the north eastern corner of the site.

The Armadale 1:50,000 Environmental Geology sheet indicates that shallow sub surface conditions beneath the site are likely to comprise the following units:

- A thin layer of Bassendean sand overlying clayey materials of the Guildford Formation, possibly at shallow depth;
- Clayey sand materials of the Guildford Formation; and



Sandy silt alluvium associated with Yule Brook, which occurs on the eastern boundary of the site.

The Perth Groundwater Atlas (2004) indicates that in May 2003, the groundwater level was between RL 6 m along the south western site boundary and RL 9 m at the eastern corner of the site (i.e. between 3 m to 4 m below existing surface level). It is noted that given the likely presence of shallow clay and based upon our experience in the area, a perched groundwater table is possible at shallow depths.

Published acid sulphate soil risk mapping indicates that the site is mostly located within an area of "moderate to low risk of acid sulphate soils occurring within 3 m of natural soil surface". An area of "high to moderate risk" is shown immediately adjacent to the south eastern site boundary, associated with the sandy silt deposits in the vicinity of Yule Brook.

3. Field Work Methods

Field work was carried out between 14 December and 23 December 2015, 28 April and 4 May 2016 and on 8 July 2016 and comprised the excavation of 127 test pits, seven in-situ permeability tests and dynamic cone penetrometer (DCP) or Perth sand penetrometer (PSP) testing, depending on the encountered ground conditions, adjacent to each test pit.

The test pits (TP1 to TP9, TP14 to TP16, TP24 to TP39, TP41 to TP94, TP96 to TP112, TP01 to TP13 and TP201 to TP213) were excavated to a maximum depth of 3.0 m using a backhoe with a 600 mm toothed bucket. The test pits were logged in general accordance with AS1726-1993 by a suitably experienced geotechnical engineer from Douglas Partners. Soil samples were recovered from selected locations for subsequent laboratory testing.

The PSP and DCP tests were carried out adjacent to the test pits in accordance with AS 1289.6.3.3 and AS 1289.6.3.2, to assess the in situ density of the shallow soils.

Seven in-situ permeability tests (TP14, TP41, TP52, TP63, TP77, TP105 and TP110) were carried out using either the falling head method or the constant head method at depths of between 0.5 m and 0.7 m below existing ground levels. The location, depths of testing, and results are discussed in detail in Section 4.3.

Test locations were determined using GPS coordinates and site features, and are marked on Drawing 1 in Appendix B. Surface elevations at each test location were estimated from a survey plan provided by Linc Property Pty Ltd, Google Earth or the Perth Groundwater Atlas, and are quoted in m AHD.

4. Field Work Results

4.1 Ground Conditions

A summary of the ground conditions encountered at the test locations is given in the next page:



- **Topsoil** (Sand and Clayey Sand) between 0.05 m and 0.4 m in thickness, comprising sand and clayey sand, with some silt, gravel and roots and a trace of cobbles.
- Non-engineered Filling and Filling (Sand, Sandy Gravel, Gravelly Sand, Clayey Sand and Sandy Clay) – apparently loosely to well compacted non-engineered granular filling with various amounts of deleterious materials, and apparently well compacted granular and cohesive filling. Weakly cemented sand filling was also recorded at particular test locations between 0.1 m and 0.8 m in thickness
- Sandy and Gravelly Materials (Sand, Slightly Silty Sand, Gravel, Gravelly Sand and Sandy Gravel) generally medium dense to very dense, becoming loose at particular test locations, sandy and gravelly materials, with various quantities of clay and silt. Weakly cemented sand (coffee rock) was also encountered at particular test locations, approximately varying between 0.2 m and 0.35 m in thickness.
- Clayey Sandy and Gravelly Materials (Slightly Clayey to Clayey Sand, Sandy Clay, Gravelly Clayey Sand, Clayey Sandy Gravel and Sandy Silt) generally firm to hard clayey sandy and gravelly materials, with pockets of ironstone. A soft sandy silt layer becoming stiff with depth was recorded at a test location undertaken adjacent to the Yule Brook.

A summary of the depths below existing surface level and relative level to the base of the non-engineered filling and filling, and sandy gravelly materials, is summarised in Table 1 below.

Table 1: Summary of Depth to the Base of Non-engineered Filling and Filling, Surface Sand, Sandy Silt, Gravel Gravelly Sand and Sandy Gravel zone and Approximate Relative Levels

Ground Investigation	Test Location	Surface Level (m AHD) ^[1]	Depth to Base of non- engineered Filling and Filling (m)	Level to Base of non- engineered Filling and Filling (m AHD)	Depth to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m)	Level to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m AHD)
	TP1	9.90	-	-	0.80	9.10
	TP2	10.10	-	-	0.90	9.20
	TP3	10.10	0.5 ^[6]	9.60 ^[6]	-	-
	TP4	9.80	-	-	0.50	9.30
	TP5	9.80	-	-	0.70	9.10
	TP6	10.20	0.60 or 1.10 ^[6]	9.60 or 9.10 ^[6]	1.70	8.50
January 2016	TP7	10.50	-	-	1.20	9.30
	TP8	10.00	-	-	0.30	9.70
	TP9	9.90	-	-	1.00	8.90
	TP14	10.20	-	-	-	-
	TP15	11.20	0.20	11.00	>1.80	<9.40
	TP16	10.80	1.00	9.80	1.60	9.20
	TP24	10.80	-	-	1.80	9.00



Table 1 (continued): Summary of Depth to the Base of Non-engineered Filling and Filling, Surface Sand, Sandy Silt, Gravel Gravelly Sand and Sandy Gravel zone and Approximate Relative Levels

Ground Investigation	Test Location	Surface Level (m AHD) ^[1]	Depth to Base of non- engineered Filling and Filling (m)	Level to Base of non- engineered Filling and Filling (m AHD)	Depth to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m)	Level to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m AHD)
	TP25	12.00	-	-	>2.50 ^[5]	<9.50 ^[5]
	TP26	11.30	-	-	>2.00	<9.30
	TP27	11.00	0.20 ^[4]	10.8 ^[4]	0.80	10.2
	TP28	10.60	-	-	0.30	10.30
	TP29	11.50	-	-	2.40	9.10
	TP30	11.30	0.50 ^[4]	10.80 ^[4]	1.10	10.20
	TP31	11.10	-	-	0.60	10.50
	TP32	11.10	0.80	10.30	1.20	9.90
	TP33	11.10	0.70	10.40	1.70	9.40
	TP34	11.00	-	-	1.50 ^[5]	9.50 ^[5]
	TP35	10.30	0.70 or 0.85 ^[6]	9.60 or 9.45 ^[6]	1.90 ^[2]	8.40 ^[2]
	TP36	10.80	0.80	10.00	1.40	9.40
	TP37	10.80	0.60 ^{[3]; [4]}	10.20 ^{[3]; [4]}	1.70	9.10
	TP38	11.00	0.60 ^[3]	10.40 ^[3]	1.00 ^[2]	10.00 ^[2]
January 2016	TP39	11.50	-	-	>2.30	<9.20
	TP41	11.30	-	-	2.20	9.10
	TP42	12.00	-	-	>2.00	<10.00
	TP43	12.40	-	-	>2.00	<10.40
	TP44	12.60	-	-	>2.50	<10.10
	TP45	12.00	-	-	>2.50	<9.50
	TP46	12.80	1.00	11.80	1.60	11.20
	TP47	12.20	1.30	10.90	1.60	10.60
	TP48	11.30	0.35	10.95	0.85	10.45
	TP49	9.70	2.20 ^[3]	7.50 ^[3]	-	-
	TP50	10.80	-	-	0.50	10.30
	TP51	11.20	-	-	0.60	10.60
	TP52	11.60	-	-	0.90	10.70
	TP53	11.60	-	-	1.10	10.50



Table 1 (continued): Summary of Depth to the Base of Non-engineered Filling and Filling, Surface Sand, Sandy Silt, Gravel Gravelly Sand and Sandy Gravel zone and Approximate Relative Levels

Ground Investigation	Test Location	Surface Level (m AHD) ^[1]	Depth to Base of non- engineered Filling and Filling (m)	Level to Base of non- engineered Filling and Filling (m AHD)	Depth to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m)	Level to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m AHD)
	TP54	11.90	-	-	1.10	10.80
	TP55	12.30	-	-	0.60	11.70
	TP56	12.40	-	-	0.45	11.95
	TP57	11.20	0.20	11.00	0.70	10.50
	TP58	11.50	-	-	0.60	10.90
	TP59	11.90	0.20	11.70	0.60	11.30
	TP60	12.40	-	-	0.60	11.80
	TP61	12.60	-	-	0.60	12.00
	TP62	12.40	-	-	1.30	11.10
	TP63	11.80	0.30	11.50	-	-
	TP64	11.60	-	-	0.80	10.80
January 2016	TP65	12.20	-	-	0.50	11.70
January 2010	TP66	12.60	-	-	0.40	12.20
	TP67	12.40	-	-	0.60	11.80
	TP68	12.00	-	-	0.50	11.50
	TP69	12.00	-	-	0.50	11.50
	TP70	11.80	-	-	0.65	11.15
	TP71	11.90	0.45	11.45	1.10	10.80
	TP72	12.00	-	-	1.20	10.80
	TP73	12.20	-	-	1.00	11.20
	TP74	12.00	-	-	0.40	11.60
	TP75	11.80	-	-	0.80	11.00
	TP76	11.60	-	-	0.80	10.80
	TP77	12.00	-	-	1.10	10.90



Table 1 (continued): Summary of Depth to the Base of Non-engineered Filling and Filling, Surface Sand, Sandy Silt, Gravel Gravelly Sand and Sandy Gravel zone and Approximate Relative Levels

Relative Leve						<u> </u>
Ground Investigation	Test Location	Surface Level (m AHD) ^[1]	Depth to Base of non- engineered Filling and Filling (m)	Level to Base of non- engineered Filling and Filling (m AHD)	Depth to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m)	Level to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m AHD)
	TP78	12.00	0.50	11.50	1.30	10.70
	TP79	11.50	-	-	0.50	11.00
	TP80	11.60	-	-	0.80	10.80
	TP81	11.30	-	-	0.80	10.50
	TP82	11.50	-	-	0.60	10.90
	TP83	11.20	0.60	10.60	0.90	10.30
	TP84	11.60	0.90	10.70	1.10	10.50
	TP85	11.10	-	-	0.80	10.30
	TP86	11.40	0.40	11.00	1.10	10.30
	TP87	11.90	0.40 or 1.0 ^[6]	11.50 or 10.90 ^[6]	1.40	10.50
	TP88	11.60	$0.40^{[4]}$	11.20 ^[4]	-	-
January 2016	TP89	11.80	0.75	11.05	1.50	10.30
	TP90	12.10	0.80	11.30	1.70	10.40
	TP91	12.10	0.80 ^[4]	11.30 ^[4]	1.10	11.00
	TP92	12.10	-	-	0.45	11.70
	TP93	12.00	0.70 ^[4]	11.30 ^[4]	1.40	10.60
	TP94	12.00	0.70	11.30	-	-
	TP96	12.20	1.20 ^[7]	11.00 ^[7]	1.50 ^[5]	10.70 ^[5]
	TP97	12.40	1.40	11.00	2.10	10.30
	TP98	12.40	1.30 ^[7]	11.10 ^[7]	2.20	10.20
	TP99	11.40	1.20 ^[4]	10.20 ^[4]	-	-
	TP100	12.40	1.10	11.30	1.80	10.60
	TP101	12.10	1.90	10.20	-	-
	TP102	12.60	1.30	11.30	2.00	10.60



Table 1 (continued): Summary of Depth to the Base of Non-engineered Filling and Filling, Surface Sand, Sandy Silt, Gravel Gravelly Sand and Sandy Gravel zone and Approximate Relative Levels

Ground Investigation	Test Location	Surface Level (m AHD) ^[1]	Depth to Base of non- engineered Filling and Filling (m)	Level to Base of non- engineered Filling and Filling (m AHD)	Depth to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m)	Level to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m AHD)
	TD400		4.00	44.00		
	TP103	12.80	1.20	11.60	-	-
	TP104	13.00	0.60	12.40	-	-
	TP105	13.20	0.30	12.90	0.80	12.40
	TP106	13.60	-	-	0.40	13.20
January 2016	TP107	13.90	-	-	0.30	13.60
	TP108	13.90	-	-	1.40	12.50
	TP109	9.60	1.00	8.60	1.30	8.30
	TP110	12.50	0.60	11.90	1.30	11.20
	TP111	12.60	0.40	12.20	1.10	11.50
	TP112	12.60	-	-	0.50 ^[5]	12.10 ^[5]
	TP201	13.00	0.40	12.60	-	-
	TP202	13.00	-	-	0.60	12.40
	TP203	13.50	-	-	0.70	12.80
	TP204	13.00	0.30	12.70	0.70	12.30
	TP205	13.00	-	-	0.90	12.10
	TP206	13.00	-	-	0.90	12.10
April-May 2016	TP207	15.00	0.90	14.10	1.60	13.40
	TP208	15.50	0.90	14.60	1.40	14.10
	TP209	15.00	0.30	14.70	1.90	13.10
	TP210	16.00	0.90	15.10	>1.0	<15.00
	TP211	16.00	0.60	15.40	>1.0	<15.00
	TP212	16.00	0.70	15.30	>1.0	<15.00
	TP213	16.00	>0.80	<15.20	-	-



Table 1 (continued): Summary of Depth to the Base of Non-engineered Filling and Filling, Surface Sand, Sandy Silt, Gravel Gravelly Sand and Sandy Gravel zone and Approximate Relative Levels

Ground Investigation	Test Location	Surface Level (m AHD) ^[1]	Depth to Base of Non- engineered Filling and Filling (m)	Level to Base of Non- engineered Filling and Filling (m AHD)	Depth to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m)	Level to Base of Sand, Sandy Silt, Gravel, Gravelly Sand and Sandy Gravel Zone (m AHD)
	TP01	14.00	1.80	12.20	-	-
	TP02	14.00	0.30	13.70	1.50	12.50
	TP03	15.00	0.30	14.70	0.60	14.40
	TP04	16.00	0.70	15.30	1.50	14.50
T T T T T T T T	TP05	12.00	0.80	11.20	-	-
	TP06	10.00	0.20	9.80	0.90	9.10
July 2016	TP07	10.00	-	-	0.70	9.30
July 2016	TP08	11.00	-	-	0.90	10.10
	TP09	11.00	-	-	0.50	10.50
	TP10	11.00	-	-	0.50	10.50
	TP11	12.00	-	-	0.70	11.30
	TP12	13.00	-	-	1.40	11.60
	TP13	13.00	0.25	12.75	0.50	12.50
	TP14	13.00	1.00	12.00	1.50	11.50

Notes: [1] Surface level from a survey plan provided by Linc Property Pty Ltd, Google Earth or the Perth Groundwater Atlas.

4.2 Groundwater

Groundwater was observed within four test pits excavated between 12 December and 24 December 2015, and within eight test pits excavated on 8 July 2016. It is expected that the groundwater within two of test pits, TP35 and TP106 is perched groundwater. The test pits were

^[2] Layers of organic sand were recorded between 0.4 m and 0.65 m in thickness.

^[3] Layers of organic filling were recorded between 0.25 m and 0.70 m in thickness.

^[4] Includes cemented filling.

^[5] Cemented sand (Coffee Rock) approximately varying between 0.2 m and 0.35 m in thickness.

^[6] Depth or level of possible filling.

^[7] Recorded as filling (topsoil).



immediately backfilled following sampling, which precluded longer-term monitoring of groundwater levels. No free groundwater was observed within any of the test pits excavated on 28 April 2016 and 4 May 2016. Groundwater levels are summarised in Table 2.

Table 2: Summary of Observed Groundwater Levels

Date	Test Location	Surface Level [1] (m AHD)	Groundwater Depth (m)	Groundwater Level [2] (RL m AHD)	
18 December 2015	TP35	10.30	1.90 ^[3]	8.40 ^[3]	
16 December 2015	TP67	12.40	2.40	10.00	
17 December 2015	TP78	12.00	2.90	9.10	
21 December 2015	TP106	13.60	1.70 ^[3]	11.90 ^[3]	
8 July 2016	TP01	14.00	1.30 ^[3]	12.70 ^[3]	
	TP02	14.00	1.20 ^[3]	12.80 ^[3]	
	TP03	15.00	1.30 ^[3]	13.70 ^[3]	
	TP04	16.00	1.70 ^[3]	14.30 ^[3]	
	TP06	10.00	1.30 ^[3]	8.70 ^[3]	
	TP07	10.00	0.70 ^[3]	9.30 ^[3]	
	TP08	11.00	0.90 ^[3]	10.10 ^[3]	
	TP11	12.00	1.90 ^[3]	10.10 ^[3]	

Notes [1]: Surface level interpolated from a survey plan supplied by Linc Property Pty Ltd and Google Earth.

It should be noted that local groundwater levels can be affected from many sources including climatic conditions, bore water usage, surrounding development, drainage systems etc. and therefore will vary over time.

4.3 Permeability

Seven in-situ permeability tests using either the constant head method or the falling head method were undertaken within the site. The constant head tests were undertaken in accordance with AS 1547-2000 Appendix 4.1F, while the falling head test values were estimated using Hvorslev's method (1951). Permeability values were also derived using the laboratory results in Section 5 and Hazen's formula, which applies for sand in a loose state. Results of the permeability analysis are summarised in Table 3 (next page).

^{[2]:} Groundwater Level = Interpolated Surface Level – Groundwater Depth.

^{[3]:} Seepage



Table 3: Summary of Permeability Analysis

Test Location	Depth (m)	Measured Permeability ^[1]		Derived Permeability (m/s)	In situ Conditions of Tested Material		
		(m/s)	(m/day)	[2]			
TP14	0.50	1.9 x 10 ⁻⁵	1.6	-	Stiff to Very Stiff Clayey Sand		
TP41	0.70	1.3 x 10 ⁻⁴	11.2	-	Medium Dense Sand, trace of silt		
TP52	0.50	1.3 x 10 ⁻⁴	11.2	1.0 x 10 ⁻⁴	Medium Dense to Dense Sand, trace of silt		
TP63	0.50	1.3 x 10 ⁻⁵	1.1	-	Very Stiff to Hard Clayey Sand		
TP77	0.50	1.4 x 10 ⁻⁴	12.0	1.7 x 10 ⁻⁴	Medium Dense Sand, trace of silt		
TP105	0.50	1.9 x 10 ⁻⁵	1.6	-	Interface of sand filling and sand, with some clay		
TP110	0.70	1.8 x 10 ⁻⁵	1.5	-	Interface of sand filling and sand, with some clay		

Notes:

[1]: In-situ assessment.

[2]: Hazen's formula. Method mostly applicable for sandy soils.

5. Geotechnical Laboratory Testing

A geotechnical laboratory testing programme was carried out by a NATA registered laboratory and comprised the determination of:

- The particle size distributions of 14 samples;
- The Atterberg limits and linear shrinkage of 8 samples;
- The shrink/swell index of nine samples.
- The organic content on five samples; and
- The modified maximum dry density (MMDD), optimum moisture content (OMC) and the California bearing ratio (CBR) values of four samples

The laboratory test results are summarised in Table 4 to Table 6.

Table 4: Results of Soil Identification Laboratory Testing

Test Location	Depth (m)	Fines (%)	d ₁₀ (mm)	d ₆₀ (mm)	LL (%)	PL (%)	PI (%)	LS (%)	lss (%)	Material
TP2	1.1-1.3	-	-	-	-	-	-	-	3.2	Clayey Sand
TP14	0.3-0.5	52	<0.0135	0.16	72	19	53	13.5	-	Sandy Clay/Clayey Sand, with some gravel
TP31	0.6-0.8	1	-	1	-	-	ı	-	2.6	Clayey Sand
TP37	0.2-0.3	44	<0.0135	0.21	34	16	18	8.0	ı	Filling (Clayey Sand)
TP48	1.0-1.3	1	-	1	-	-	ı	-	1.5	Clayey Sand
TP49	1.6-1.8	23	<0.0135	0.39	-	-	-	-	-	Filling (Clayey Sand)



Table 4 (continued): Results of Soil Identification Laboratory Testing

Table 4 (Con	unueu). I	vesuits c	n Son ide	Hillicat	IOII La	iborat	Oly It	sung		
Test Location	Depth (m)	Fines (%)	d ₁₀ (mm)	d ₆₀ (mm)	LL (%)	PL (%)	PI (%)	LS (%)	lss (%)	Material
TP51	1.1-1.4	19	<0.0135	0.60	29	20	9	5.5	0.1	Slightly Gravelly Slightly Clayey Sand
TP52	0.3-0.5	5	0.1	0.41	-	-	-	-	-	Sand, with some silt
TP54	2.3-2.4	31	<0.0135	0.48	65	18	47	15.0	-	Clayey Sand, with some gravel
TP63	0.3-0.5	19	<0.0135	0.45	32	14	18	5.5	-	Slightly Clayey Slightly Gravelly Sand
TP66	0.6-0.8	-	-	-	-	-	-	-	2.1	Clayey Sand
TP68	0.5-0.65	-	-	-	-	-	-	-	2.2	Clayey Sand
TP74	0.7-0.8	-	-	-	-	-	-	-	2.1	Clayey Sand
TP77	0.3-0.5	3	0.13	0.48	-	-	-	-	-	Sand, trace of silt
TP79	0.8-1.15	25	<0.0135	0.39	73	14	59	20.0	5.6	Slightly Gravelly Clayey Sand
TP87	0.5-0.6	20	<0.0135	0.30	-	-	-	-	-	Slightly Clayey Sand, trace of gravel
TP92	0.5-0.8	-	-	-	-	-	-	-	3.8	Clayey Sand
TP96	0.9-1.0	3	0.18	0.52	-	-	-	-	-	Filling (Sand with some gravel and a trace of clay)
TP103	0.6-0.7	5	0.16	0.51	-	-	-	-	-	Filling (Slightly Gravelly Sand, with some silt)
TP104	1.2-1.3	13	<0.0135	8.5	-	-	-	-	1	Slightly Clayey Sandy Gravel
TP106	0.5-0.6	61	<0.0135	0.07	-	-	-	-	-	Sandy Silt, with some gravel

Where:

- The % fines is the amount of particles smaller than 75 μm_{\cdot}
- A $d_{\rm 10}$ of 0.17 mm means that 10% of the sample particles are finer than 0.17 mm.
- A $d_{\rm 60}$ of 0.23 mm means that 60% of the sample particles are finer than 0.23 mm.
- Iss: Shrink-Swell Index
- PL: plastic limit.
- LL: liquid limit.
- PI: plasticity Index.
- LS: linear shrinkage
- '-' means 'Not Tested'



Table 5: Results of Topsoil, Filling and Surface Sand Organic Content Laboratory Testing

Test Location	Depth (m)	Organic Content (%)	Material
TP37	0.2-0.3	4.9	Filling (Clayey Sand)
TP38	0.4-0.5	6.0	Filling (Clayey Sand)
TP49	1.6-1.8	19.3	Filling (Sand)
TP70	0-0.1	2.6	Topsoil
TP106	0.5-0.6	5.5	Sandy Silt, with some gravel

The CBR tests were undertaken at a target compaction level of 95% of modified maximum dry density. The samples were tested after soaking for four days with a confining surcharge of 4.5 kg, and the results are presented in Table 6 below.

Table 6: Results of Laboratory Testing for Pavement Design

Test Location	Depth (m)	MMDD (t/m³)	CBR (%)	OMC (%)	Swell (%) Material		
TP14	0.3-0.5	1.816	1.5	15.2	5.0	Sandy Clay/Clayey Sand, with some gravel	
TP63	0.3-0.5	2.070	4	9.1	4.5	Slightly Clayey Slightly Gravelly Sand	
TP87	0.5-0.6	2.050	16	8.8	0	Slightly Clayey Sand, trace of gravel	
TP106	0.5-0.6	1.786	13	18.2	0.5	Sandy Silt, with some gravel	

Notes:

- MMDD: modified maximum dry density.
- CBR: California bearing ratio.
- OMC: optimum moisture content.

6. References

- 1. Australian Standard AS 1289-2000, Methods of Testing Soils for Engineering Purposes.
- 2. Australian Standard AS 1289.6.3.2-1999, Soil Strength and Consolidation Tests-Determination of the Penetration Resistance of a Soil Dynamic Cone Penetrometer Test.
- 3. Australian Standard AS 1289.6.3.3-1999, Soil Strength and Consolidation Tests-Determination of the Penetration Resistance of a Soil Perth Sand Penetrometer Test.
- 4. Australian Standard AS 1726-1996, Geotechnical Site Investigation.
- 5. Department of Environment, Perth Groundwater Atlas, Second Edition, December 2004.



7. Limitations

Douglas Partners has prepared this factual repor for this project at Coldwell Road, Kenwick in accordance with Douglas Partners proposals dated 18 December 2015 and 20 April 2016 and acceptance received from Mr Ben Lisle and Mr Brett Chivers of Linc Property Pty Ltd dated 1 December 2015, 20 April and 5 July 2016. The work was carried out under Douglas Partners Conditions of Engagement.

This factual report is provided for the exclusive use of Linc Property Pty Ltd for this project only and for the purposes as described in the factual report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this factual report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas Partners, does so entirely at its own risk and without recourse to Douglas Partners for any loss or damage. In preparing this factual report Douglas Partners has necessarily relied upon information provided by the client and/or their agents.

The results provided in the factual report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas Partners field testing has been completed.

This factual report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas Partners cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this factual report.

This factual report, or sections from this factual report, should not be used as part of a specification for a project, without review and agreement by Douglas Partners. This is because this factual report has been written as advice and opinion rather than instructions for construction.

Douglas Partners Pty Ltd

TEST PIT LOG

CLIENT: Linc Property Pty Ltd

PROJECT: Proposed Industrial Development 32 Courtney Place, Wattle Grove LOCATION:

SURFACE LEVEL: 13.0 m AHD* PIT No: TP201 **EASTING:** 403820

NORTHING: 6458412

PROJECT No: 88698.04

DATE: 28/4/2016 SHEET 1 OF 1

	Т				C = :-	lin - 0	In City Tooting					
	Depth	Description of	Graphic Log				In Situ Testing	Water	Dyna	amic Pene	etromete	er Test
	(m)	Strata	Gra	Туре	Depth	Sample	Results & Comments	×	5	(blows pe	er 150mi 15	m) 20
_	0.1	TOPSOIL (SAND) - grey-brown, fine to medium grained, sand topsoil, with some silt and roots, moist.		B E	0.0	0,				:		
	0.1	FILLING (SAND) - medium dense, light brown and grey, fine to medium grained, sand, with a trace of silt, and occasional roots, moist.		B E	0.2						-	
	0.4	SLIGHLTY CLAYEY SAND - dense, light brown, fine to medium grained, slightly clayey sand, moist.		B E	0.4				-			
	0.6	CLAYEY SAND - hard, orange-brown mottled grey-green,	1///	E-	0.6				-			
		low plasticity, clayey sand, moist.		E D	0.7				. :		:	
					0.8				- !			
									-			
	1	- becoming off-white mottled light grey-green, with some gravel from 1.0 m depth.		E	1.0				-1	•	:	:
		g		5	1.1					:		
	2				2.0				-2			
•	-			D	2.1				-			
									-			

LOGGED: JK SURVEY DATUM: RIG: 8 tonne backhoe equipped with a 600 mm toothed bucket

WATER OBSERVATIONS: No free groundwater observed

- becoming grey-green from 2.7 m depth.

Pit discontinued at 3.0m (target depth)

-₽-3

REMARKS: *Surface levels interpolated from survey sent by the client and Perth groundwater atlas. Levels are

☐ Sand Penetrometer AS1289.6.3.3

	SAN	1PLING	& IN SITU TESTING	LEGE	ND
Α	Auger sample	G	Gas sample	PID	Pho
В	Bulk sample	Р	Piston sample	PL(A)	Poi
BLK	Block sample	U,	Tube sample (x mm dia.)	PL(D)	Poi
С	Core drilling	W	Water sample	pp	Pod
D	Disturbed sample	⊳	Water seep	S	Sta
Ε	Environmental sample	Ī	Water level	V	She

PND Photo ionisation detector (ppm)
s) Point bad axial test Is(50) (MPa)
) Point bad diametral test Is(50) (MPa)
Pocket penetrometer (kPa)
Standard penetration test
Shear vane (kPa)



TEST PIT LOG

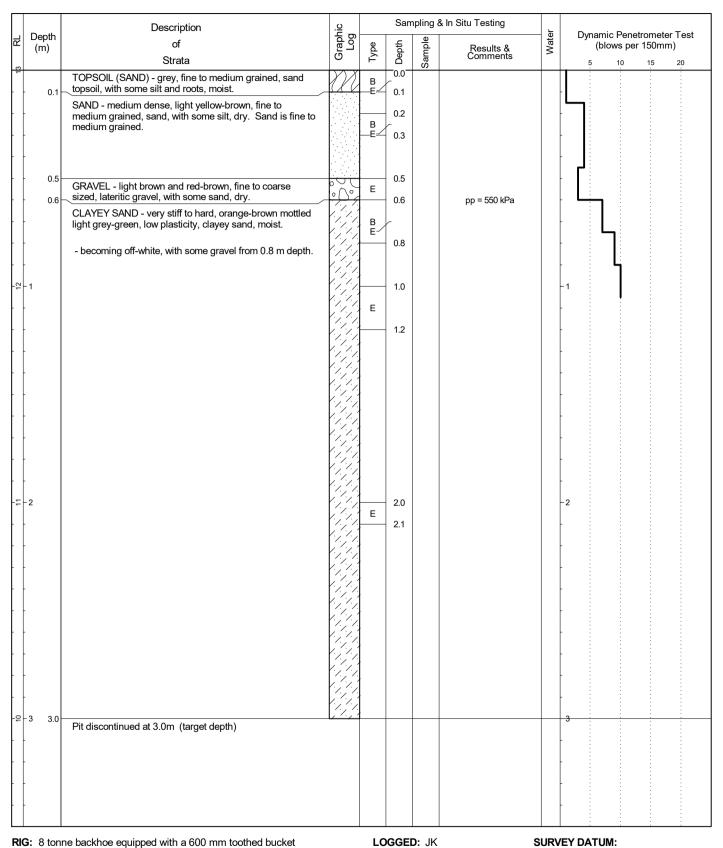
CLIENT: Linc Property Pty Ltd

PROJECT: Proposed Industrial Development **LOCATION:** 32 Courtney Place, Wattle Grove

SURFACE LEVEL: 13.0 m AHD* **PIT No:** TP202

EASTING: 403791 **PROJECT No:** 88698.04 **NORTHING:** 6458470 **DATE:** 28/4/2016

SHEET 1 OF 1



Cooline backinge equipped with a 000 min toothed backet

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *Surface levels interpolated from survey sent by the client and Perth groundwater atlas. Levels are approximate.

☐ Sand Penetrometer AS1289.6.3.3☑ Cone Penetrometer AS1289.6.3.2

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample

 G Pull
 G Sas Sample
 PID Plo
 Pho
 Plo
 Pho
 Pho

LEGEND
PID Photo ionisation detector (ppm)
PL(A) Point load axial test Is(50) (MPa)
PL(D) Point load diametral test Is(50) (MPa)
pp Pocket penetrometer (kPa)
S Standard penetration test
V Shear vane (kPa)



TEST PIT LOG

Linc Property Pty Ltd CLIENT:

PROJECT: **Proposed Industrial Development** 32 Courtney Place, Wattle Grove LOCATION:

SURFACE LEVEL: 13.5 m AHD* **PIT No:** TP203

EASTING: 403888 **PROJECT No: 88698.04 NORTHING:** 6458489 **DATE:** 28/4/2016

SHEET 1 OF 1

		Description	. <u>ಲ</u>		San	npling 8	& In Situ Testing	_	Dominio Dominio Dominio Torit		
1	Depth (m)	of	Graphic Log	Log Type Depth			Results &	Water	Dynamic Penetrometer Test (blows per 150mm)		
	()	Strata	์ 5	Ę	Depth	Sam	Results & Comments	>	5 10 15 20		
	0.1	TOPSOIL (SAND) - dark brown, fine to medium grained, sand topsoil, with some silt and roots, moist.		B E-	0.0			-			
-		SAND - medium dense, light brown, fine to medium grained, sand, with a trace of silt, moist.						-			
ŀ				B E	0.3						
2-				_	0.4			-	\		
-								-			
	0.7	CLAYEY SAND - stiff, orange-brown mottled grey-green, low plasticity, clayey sand, moist.		В	0.7						
-		- becoming off-white on half of the pit from 0.9 m depth.		E	0.9			-			
-1	1			1	1.0				1		
-		- with a pocket of red-brown ironstone gravel from 0.9 m		ı	1.2			-			
-		to 1.6 m depth.									
<u> </u>								-			
-		- becoming off-white, with some gravel, from 1.6 m depth.									
-								-			
								-			
-2	2			E	2.0			-	2		
-					2.2			-			
=-	2.5	Pit discontinued at 2.5m (target depth)	V.///								
-											
-											
- 3	3								3		
-											
-											
-											
								\perp			

RIG: 8 tonne backhoe equipped with a 600 mm toothed bucket LOGGED: JK SURVEY DATUM:

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *Surface levels interpolated from survey sent by the client and Perth groundwater atlas. Levels are approximate.

☐ Sand Penetrometer AS1289.6.3.3

SAMPLING & IN SITU TESTING LEGEND

A Auger sample
B Bulk sample
BLK Block sample
C Core drilling
D Disturbed sample
E Environmental sample LING & IN SITUTESTING
G Gas sample
P Piston sample
U, Tube sample (x mm dia.)
W Water sample
Water seep
Water level LECEND
PID Photo ionisation detector (ppm)
PL(A) Point load axial test Is(50) (MPa)
PL(D) Point load diametral test Is(50) (MPa)
PL(D) Point load diametral test Is(50) (MPa)
p Pocket penetrometer (kPa)
S Standard penetration test
V Shear vane (kPa)



Appendix A

About This Report

About this Report DOUGLAS Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

 In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report;
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

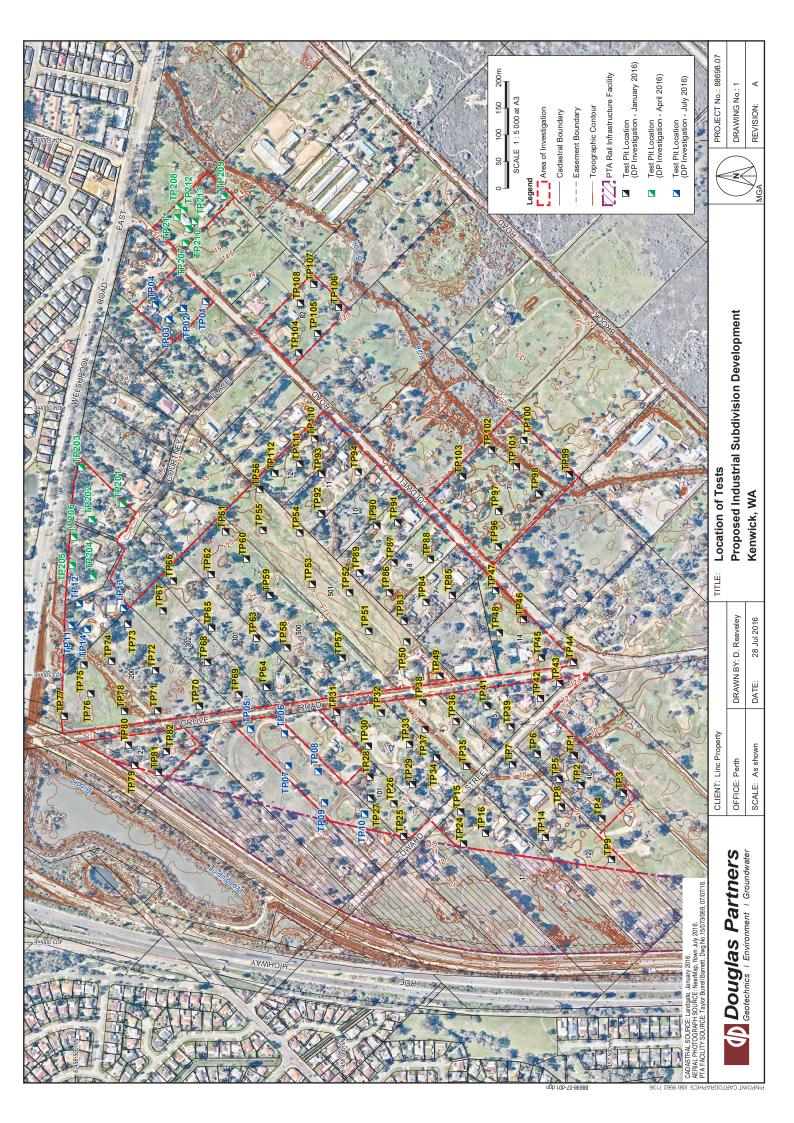
Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Appendix B

Drawing



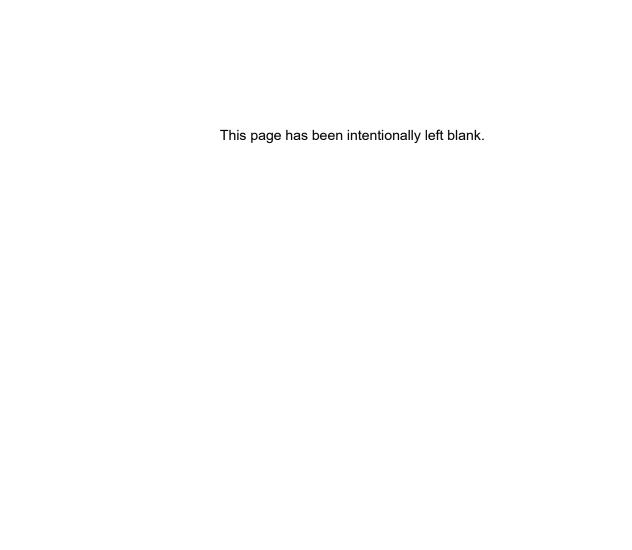


Geotechnical Investigation Report

Lot 14 and 15 Courtney Place Wattle Grove, WA

GGC201843 September 2020





ABN: 69 611 127 676

Lot 14 and 15 Courtney Place, Wattle Grove, WA

Our ref: GGC201843-R01-Rev1

Geotechnical Investigation Report

Prepared for Q Design and Construct Pty Ltd 74 Goodwood Parade Burswood WA 6100

Prepared by Geotechnical and Geological Consultants Pty Ltd 439 Vincent Street West Leederville WA 6007

15 September 2020

Document authorisation

For and on behalf of Geotechnical and Geological Consultants Pty Ltd

Ian Rogers

Senior Engineering Geologist

Quality information

Revision history

Revision	Description	Date	Author	Reviewer	Signatory
Rev0	Issued to Client	15 September 2020	IHR/JC	CBD	IHR
Rev1	Issued to Client	15 September 2020	IHR/JC	CBD	IHR

Distribution

Report Status	No. of copies	Format	Distributed to	Date
Rev1	1	PDF	Q Design and Construct Pty Ltd	15 September 2020
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IMPORTANT INFORMATION SHEETS

"Your Geotechnical Report"

FIGURES

FIGURE 1 SITE INVESTIGATION PLAN





APPENDICES

APPENDIX A TEST PIT LOGS

APPENDIX B LABORATORY TEST RESULTS





1 Introduction

This report presents the results of a geotechnical investigation carried out by Geotechnical and Geological Consultants Pty Ltd (GGC) for Q Design and Construct Pty Ltd (QDC) for the proposed industrial development located at Lot 14 and 15 Courtney Place, Wattle Grove, WA ("the site"). We understand that the site forms part of the Maddington Kenwick Strategic Employment Area (MKSEA).

This work was commissioned by Shane Brennan via a client acceptance form dated 20 August 2020.

This report, and the information presented and herein, must be read together with the important notes included on the "Your Geotechnical Report" information sheets included after the main report text.

2 Site description

The site occupies a rectangular shaped parcel of land that covers an area of about 2 ha. It is bound to the south west by Courtney Place, to the south east by Coldwell Road, and to the north by rural residential properties.

The existing ground surface is relatively flat with ground surface levels ranging from about 13 m AHD to about 14 m AHD.

The site surface comprises a mixture of grassed areas and mature trees with remnants of inert (construction) waste within the foundation footprints of two recently demolished residential dwellings.

An existing v-drain runs directly parallel to the site boundary along Courtney Place and Coldwell Road with standing water present within the drain at the time of fieldwork.

The extent of the proposed site is shown on the Site Investigation Plan, presented as Figure 1.

3 Proposed development

It is understood that the proposed development will comprise of three warehouses, a concrete hardstand, and car parking for light vehicles.

It is anticipated that the site will require bulk earthworks to raise the existing levels for drainage and foundation construction, with the final site development levels likely to be about 1.5 m to 2 m above the existing site levels.

It is expected that the proposed structures will be founded onto shallow foundations (strip and pad footing) with ground bearing floor slabs.





4 Project objectives

The objectives of the geotechnical investigation were to:

- Assess subsurface soil and groundwater conditions across the site;
- Provide a site classification(s) in accordance with AS2870-2011 "Residential Slabs and Footings", as far as is relevant to the proposed development;
- Provide recommendations to achieve a 'A-Class' site classification in accordance with AS2870-2011 (if required);
- Provide foundation design parameters for shallow (pad or strip footings);
- Provide indicative California Bearing Ratio (CBR) value(s) for the subgrade for future flexible pavement design (by others); and
- Assess the suitability of soils at the site for on-site disposal of stormwater via infiltration by soakage.

5 Available information

5.1 Client supplied information

The following information was provided for use in compiling this report:

- QDC 'Site / Floor Plan' Ref. SK01 Rev E dated 2020;
- QDC 'ISOS' Ref. SK03 Rev E dated 2020;
- Land Surveys Pty Ltd Feature Survey Plan Ref. 1801069-FA-001-A; and
- ▶ Emerge Associates Pty Ltd 'Urban Water Management Plan Roe Highway Logistics Park MKSEA Precinct 3A Stages 1, 2 and 3' Ref EP17-023(04) dated July 2019.

5.2 Published information

The following published information has been used in the preparation of this report:

- The 1:50,000 Environment Geology sheet (Armadale) Geological Survey of WA; and
- The Department of Water and Environmental Regulation's Perth Groundwater Atlas (https://maps.water.wa.gov.au/#/webmap/gwm).

6 Fieldwork

6.1 General

Fieldwork was carried out on 27 August 2020 and comprised:

- Site walkover by a Senior Engineering Geologist from GGC;
- ▶ Six test pits (TP01 to TP06) advanced using an 8-tonne rubber tyred backhoe to depths of between 2.1 m to 2.5 m below existing ground level;
- Six Dynamic Cone Penetrometer (DCP) tests in undisturbed ground adjacent to each of the test pits to depths of up to 0.9 m below existing ground level;
- Four infiltration tests (IF01 to IF04) were completed within the hand auger boreholes at depths of up to 0.9 m below existing ground level;
- Recovery of samples for geotechnical laboratory testing; and
- On-site logging by a Senior Engineering Geologist from GGC.





The investigation locations were recorded by a handheld GPS with an accuracy of approximately +/-5 m. All depth measurements included in this report are referenced in metres below the existing ground level. Surface elevations were not recorded by GGC and elevations at each test location were estimated in the office using existing surface contours provided by QDC.

Approximate investigation locations are shown on the Site Investigation Plan, *Figure 1*, attached to this report.

6.2 Test pitting

A total of six test pits (TP01 to TP06) were excavated to depths of between 2.1 m to 2.5 m below existing ground surface using an 8-tonne rubber tyred backhoe. Disturbed samples of the encountered soils were recovered from the test pits for laboratory testing. On completion, each test pit was backfilled with spoil to the existing ground level.

The test pit logs showing the major strata intersected and the depths at which samples were recovered are included together with explanatory notes in *Appendix A*. A summary of the test pits is included in *Table 1*.

Table 1 - Summary of Test Pits

Test Pit No.	Easting	Northing	Elevation (m AHD)	Termination Depth (m bgl)	Termination Reason
TP01	404041	6458246	13.1	2.5	Target Depth
TP02	404053	6458316	13.7	2.5	Target Depth
TP03	404101	6458305	13.6	2.5	Target Depth
TP04	404115	6458272	13.8	2.5	Target Depth
TP05	404165	6458256	13.6	2.1	Refusal – Collapse due to water
TP06	404116	6458198	13.0	2.5	Target Depth

6.3 Dynamic cone penetrometer testing

Dynamic Cone Penetrometer (DCP) testing was carried out at six locations adjacent to each test pit. The DCP tests were undertaken to depths of up 0.9 m below the existing ground surface. The DCP tests were completed in accordance with the test method described in AS 1289.6.3.2.

Tabulated results for the DCP testing (blows/ 100 mm penetration) are included in Appendix A.

6.4 Infiltration testing

Four infiltration tests were completed in hand augured boreholes (IF01 to IF04). The infiltration tests were completed using the "Inverse Auger Hole Method" described by Cocks (2007). The results of the infiltration testing are summarised in **Table 2**.





Table 2 – Summary of falling head infiltration Tests

Test No.	Easting	Northing	Elevation (m AHD)	Stratigraphy	Depth to base of test (m)#	Minimum Unsaturated Permeability, k (m/day)*
IF01	404107	6458180	13.1	Sand overlying Sandy Clay	0.5	2.9
IF02	404171	6458254	13.5	Sand overlying Sandy Clay	0.8	1.3
IF03	404130	6458288	13.7	Sand overlying Sandy Clay	0.65	1.3
IF04	404009	6458279	13.2	Sand overlying Sandy Clay	0.9	1.4

Notes:

7 Description of laboratory testing

Geotechnical laboratory testing was carried out in accordance with the general requirements of AS 1289 by Material Consultants at their NATA registered soils laboratory in Perth.

A summary of the testing completed for this study is presented in *Table 3* and the laboratory test certificates are included in *Appendix B*.

Table 3 – Extent of laboratory testing

Type of Test	Test Method Reference	Number of Tests Completed
Particle Size Distribution	AS1289.3.6.1	3
Atterberg Consistency Limits (Liquid Limit, Plastic Limit, Plasticity Index, and Linear Shrinkage	AS1289.3.1.1-3.4.1	1
Modified Compaction (MMDD)	AS1289.5.2.1	1
Soaked California Bearing Ratio (CBR)	AS1289.6.1.1	1

8 Site conditions

8.1 Published geological information

The 1:50,000 Environmental Geology Series map (Armadale) indicates that majority of the site in its undisturbed condition state is expected to be underlain by Clayey Sand (S_c) of the Guildford Formation along the north western boundary and Bassendean Sand (S_{10}) overlying the Guildford Formation across the remainder of the site.

The main units described on the published map are:

- ▶ **Bassendean Sand, S**₁₀ Sand; white to pale grey at surface, yellow at depth, fine to medium grained, moderately sorted, sub-angular to sub-rounded, of eolian origin over Sandy Clay to Clayey Sand of the Guildford Formation; and
- ▶ **Guildford Formation, S**_c Clayey Sand; silty in part, pale grey to brown, medium to coarse-grained, poorly sorted, sub-angular to rounded sand, frequent heavy minerals, rare feldspars, of alluvial origin.

^{*}All depths are relative to existing ground surface.

^{*} Minimum unsaturated permeability were estimated at the end of test when head pressure is at a minimum.



8.2 Published groundwater information

Historic maximum groundwater contours included on the Perth Groundwater Map indicate that the highest groundwater levels at the site are about RL 13 m AHD. This is up to about 1 m below current ground levels and at, or very close to, the current ground level across the some portions of the site.

8.3 Encountered subsurface conditions

General site

The typical subsurface profile encountered during the GGC investigation was generally consistent with the published information and is summarised in *Table 4.*

Table 4 - Typical Subsurface Profile

Layer/Unit	Typical Depth to Top of Layer (m)	Typical Depth to Bottom of Layer (m)	Thickness of Layer (m)	Typical Description/ Remarks
UNCONTROLLED FILL	within footp	up 1.5 m above g ints of demolishe ther construction site surface	d residential	SAND: pale brown to off white; fine to coarse, subangular to subrounded quartz sand; with some fine to coarse gravel and cobbles sized fragments of mixed lithology including construction waste
TOPSOIL	0.0	0.1 to 0.2	0.1 to 0.2	Sandy Topsoil: fine to coarse grained, subangular to subrounded; brown grey; trace organic fines
BASSENDEAN SAND	0.1 to 0.2	0.4 to 1.5	0.3 to 1.3	SAND: brown becoming orange; fine to coarse grained, subangular to subrounded quartz; trace fines occasional with some at depth; very loose to medium dense.
GUILDFORD FORMATION	0.3 to 1.5	Beneath depth of investigation	-	Clay and Sand mixtures: Sandy CLAY/Clayey Sand mottled orange, grey; medium plasticity; sand fine to coarse grained, subangular to subrounded, quartz; occasional trace fine to coarse gravels of pisolites, extremely weathered limestone fragments, and cemented clayey sand nodules; becoming weakly to moderately cemented; soft to stiff to depths of 0.9m
	0.4 0		0.4	CLAY: mottled pale brown, orange brown; medium plasticity; with some fine to coarse grained sand; soft to stiff. Only encountered in TP02
MUCHEA LIMESTONE (Extremely Weathered)	0.8	2.5	1.7	Silty CLAY: off white; low to medium plasticity; with some fine to coarse grained sand; trace of fine to coarse grained, angular to subangular gravel of weathered limestone. Only encountered in TP02

Notes: All depths are in metres below existing ground level. Depths and thicknesses are approximate only.



Groundwater Levels

Groundwater was encountered within test pits across the site as summarised in the Table 5 below.

Table 5 - Groundwater levels

Location	Depth to water (m)	RL of water (m AHD)	Date Recorded
TP01	0.7	12.4	27 August 2020
TP02	1.0	12.7	27 August 2020
TP03	1.1	12.5	27 August 2020
TP04	1.6	12.2	27 August 2020
TP05	1.0	12.6	27 August 2020
TP06	Not encountered	-	27 August 2020

Notes:

All depths recorded relative to existing ground level at time of investigation.

It should also be noted that groundwater levels will vary over time in response to environmental factors, including rainfall, temperature, and other factors. The values in *Table 5* are levels taken on 27 August 2020 and are not maximum values for design.

8.4 Results of laboratory testing

The results of the laboratory testing completed on samples recovered during the investigation fieldwork are summarised in *Table 6* the laboratory test certificates are included in *Appendix C*.

Table 6 - Summary of laboratory test results

					cle Siz		Consiste	ency Limi	t - Atterbe	erg			
Test Pit Reference	Depth from (m)*1	Depth to (m)*1	% Gravel	% Sand	% Fines	% Passing 0.425 mm	Liquid Limit %	Plastic Limit %	Plasticity Index %	Linear Shrinkage %	CBR	MDD (t/m³)	OMC (%)
TP01	0.2	0.7	1	87	12	61	-	-	-	-	30	1.86	10.5
TP01	1.0	1.5	3	89	8	56	-	-	-	-	-	-	-
TP01	1.5	2.0	0	64	36	85	30	18	12	6	-	-	-

Notes:

*1 all depths measured relative to existing surface level

OMC - Optimum Moisture Content

MDD - Maximum Dry Density completed using Modified Compactive Effort

CBR - California Bearing Ratio, soaked and remoulded to a dry density ratio of 95% MMDD, 4.5kg surcharge





9 Geotechnical assessment

9.1 Site classification

The site classification system included in AS2870-2011 is applicable only to one and two storey residential buildings, or structures of similar size, structural articulation and loading. The footing details and inferred soil movement associated with AS2870-2011 are not applicable to larger structures, taller structures or structures with heavier loading than defined in the standard. This must be considered by the structural engineers and appropriate measures included in their design.

Based on current site conditions including the presence of Uncontrolled Fill and of high groundwater we consider a site classification of "*Class P*" for this site in accordance with AS2870-2011.

The overall site can be improved to a "Class A" site classification in accordance with AS2870-2011 provided that the site preparation measures detailed in **Section 9.2** and **Section 9.3** are completed. This requires a minimum of 1.8m of inert granular soil above clayey material of the Guildford Formation at the site. We expect this will require between 0.5 m and 1.5 m of Sand Fill to be imported to site.

9.2 Recommended site preparation measures

The following site preparation measures are aimed at the achieving the required site classification. Recommended site preparation works include:

- Remove any Uncontrolled Fill including buliding pads and access tracks, deleterious materials from across the site;
- Strip all topsoil/organic matter and grub out all vegetation from proposed development areas, including removal of roots and stumps, to expose the underlying natural soils;
- Stockpile excavated materials for possible re-use (subject to approval by a geotechnical engineer), or arrange for disposal of unsuitable/ deleterious materials to a suitably licensed facility;
- Proof compact the exposed natural sand/cut surface to a Dry Density Ratio (DDR) of 95% Maximum Modified Dry Density (MMDD) to a depth of at least 1 m. Where proof compaction reveals 'soft spots' or 'loose zones' these must be excavated and backfilled with granular fill and compacted to 95% MMDD;
- Import inert granular Sand Fill (Approved Strutural Fill) to achieve a minimum thickness of 1.8 m inert soil above clayey soils of the Guildford Formation. Sand Fill must comprise clean-sand that is free of organic matter and must have a fines content of less than 5%. Place inert granular soil in accordance with **Section 9.3** and **Section 9.4**; and
- A minimum separation of 1 m between the final site development surface and the highest design groundwater level is recommended by GGC where "Class A" site classifications are required and where there is potential for a high groundwater.

It should be noted that compaction within 1 m of the groundwater table is likely to be difficult. We recommend that earthworks be undertaken during summer months to avoid potential problems achieving compaction close to the groundwater table, consideration could also be given to dewatering as required.





9.3 Placement and compaction imported granular fill (approved structural fill)

Imported inert granular Sand Fill (Approved Structural Fill) used to build up levels across the site must be compacted using suitable plant and equipment to a dry density ratio of at least 95% MMDD as determined in accordance with AS1289.5.2.1 and must comply with the material requirements of AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments".

Where sand with less than 5% fines is used, and the Perth Sand Penetrometer can be used for compaction control, the following minimum blow counts may be assumed to correlate approximately to a dry density ratio of 95% MMDD:

Depth Range 0.0-0.15 m: SET;

Depth Range 0.15-0.45 m: 8 blows;

Depth Range 0.45 - 0.75 m: 10 blows; and

Depth Range 0.75 - 1.05 m: 12 blows.

Whilst the above can be used as a general guide for naturally occurring Perth sands with less than 5% fines, experience indicates that correlation variations do occur. It is therefore recommended that a site-specific PSP/ dry density correlation is undertaken for each material source used on this project.

Over excavation and replacement with approved granular fill may be required where the minimum dry density cannot be achieved. If compaction difficulties are noted, the advice of an experienced geotechnical engineer should be sought.

After compaction, verification testing is required to confirm the level of compaction that has been achieved by testing to a minimum depth of 1.05 m:

- On each lift of fill on a 10 m grid;
- At each spread footing location;
- At 5 m centres along gravity retaining wall footings and all strip footings (where present); and
- At 10 m centres below on-ground slabs and pavements.

Fill must be placed in horizontal layers not exceeding 300 mm loose lift thickness (depending on the compaction plant adopted). Each layer must be compacted by suitable compaction equipment, and carefully controlled to ensure even compaction over the full area and depth of each layer.

9.4 Footings

We consider that shallow pad and strip footings can be used to support future structures at this site. Provided the recommendations in this report are adopted, we consider a minimum allowable bearing pressure of 200 kPa for strip and pad footings with a minimum embedment depth of 0.5 m below finished ground level.





9.5 Flexible pavements

We recommend a subgrade CBR value of 10% for sand subgrade compacted to a dry density ratio of at least 95 % maximum modified dry density (MMDD).

The above recommended CBR values assume that the subgrade will be prepared and compacted in accordance with the recommendations outlined above to a depth of at least 0.5 m below top of subgrade level.

9.6 Stormwater disposal

Based on assessment of site infiltration rates, and our experience in the area we consider that the site is currently unsuitable for on-site disposal of stormwater by infiltration using soak wells, due to the presence of shallow groundwater and shallow clayey soils.

Provided there is a minimum thickness of 1.8 m of inert Sand soil above clayey soils of Guildford Formation and any imported Sand Fill used to raise the site has a permeability value (k) of at least 5 m/day, we recommend a design permeability value (k) for the site of 2 m/day to allow for the variability in materials and reduced permeability's as a consequence of:

- Densification of sand during site preparation works;
- Natural variability in the Sands; and
- Clogging of the sand around soak wells over time with fines.

Soak wells should be positioned a minimum distance of 5 m from footings and ground bearing slabs (subject to council regulations). Discharge from soak wells can cause local densification of loose sandy soils, leading to settlement of footings and slabs overtime.

If soak wells are positioned closer than 5 m to building footings and slabs, consideration can be given to wrapping the soak well with a non-woven separation geotextile, but the specification for the geotextile must be provided by an experienced geotechnical engineer.

We also recommend a minimum separation spacing of at least 10 m between individual soak wells at this site. This minimum distance is intended to reduce the potential for reducing the local permeability and interaction between the soak wells that may reduce the effectiveness of soakage.

10 Important information about your GGC geotechnical report

The reader's attention is drawn to the important information about this report which follows the main text.





11 References

The following published information sources have been reviewed by GGC in compiling this report:

- Standards Australia (2017) "Geotechnical Site Investigations" Australian Standard AS1726-2017;
- Standards Australia (2011) "Residential Slabs and Footings" Australian Standard AS2870 2011;
- Standards Australia (2007) "Guidelines on Earthworks for Commercial and Residential Developments" Australian Standard AS3798 2007;
- Hilliman, H and Cocks, G (2007), Journal and News of Australian Geomechanics Society,
 Volume 42 No. 3 pp 115-120 "Subsoil Drainage Design Perth Residential and Road Developments;
- Cocks, G (2007), Journal and News of Australian Geomechanics Society, Volume 42 No. 3 pp 101-114 "Disposal of Stormwater Runoff by Soakage in Perth Western Australia; and
- Armadale (1986), Sheet SH 2033 I and part of SH 2133 IV. (1:50,000 scale) Environmental Geological Series, Geological Survey of Western Australia; and
- Government of Department of Water and Environmental Regulation, online Perth Groundwater Maps, (http://maps.water.wa.gov.au/#/webmap/gwm).



1 Introduction

The information contained in this document is to inform GGC's clients of the reasonable expectations of a geotechnical report and options to mitigate geotechnical risks and consequences. This information is provided to help clients understand where GGC's responsibility as a geotechnical engineer, acting reasonably, begin and end. In doing so, it also highlights the responsibility of our client and third parties.

Please contact the GGC Project Director should you not understand the report and the limitations of the information provided.

2 Collection and Interpretation of Data

Geotechnical investigations identify subsurface conditions only at the point of investigation. The material encountered during the investigation is recorded on logs and based on a visual assessment and (if undertaken) supported by laboratory test results. In the case of an Electric Friction Cone Penetrometer Test (CPT), the data recorded is a tip pressure and sleeve friction on a rod; from which ground conditions are inferred.

Actual conditions may differ from those encountered during the investigations and / or inferred a distance from the investigation stations. In addition, the actual interface between materials or units may be gradual or more abrupt than inferred from the results of the investigation.

A Chartered Geotechnical Engineer and / or Engineering Geologist should be retained through the various stages of the project to identify variances, conduct additional tests if required, and provide recommendations to address geotechnical / geological issues identified on site. The Chartered Geotechnical Engineer / Engineering Geologist should also review the actual conditions encountered to confirm that they are consistent with those inferred in this report.

3 Change in Subsurface Conditions

The geotechnical recommendations and parameters provided in this report are based on the ground conditions encountered at the time of the geotechnical investigation. Changes in the ground conditions can occur over time and include, but are not limited to, the following:

- Filling or excavation works (or other anthropologic events);
- Flooding;
- Groundwater fluctuations;
- Earthquakes or other such events;
- Works on neighbouring sites impacting on the subject site; and,
- Migration of pollutants from neighbouring properties.

GGC should be consulted if there is any protracted delay in the issue of this report and the use of the recommendations provided.

It is important to note that where ground conditions have changed, additional geotechnical investigations and testing may be required to assess the impacts of the changed ground conditions.



4 Specificity of Report

This geotechnical report has been prepared for a specific project and design; therefore, it has been written to address specific geotechnical issues. In doing so, the following has been taken into account:

- The project objectives as described in the report;
- The client's budget and programme constraints;
- The specific site mentioned in the report; and,
- The nature and extent of the development at the site.

This report should not be used for any other purpose other than what has been specifically described and should not be relied upon if:

- The report was not written for you;
- The report was not written for your specific site;
- The report does not address your specific development;
- ▶ There is a significant delay between undertaking the report and developing the site; or,
- Significant changes to the site have occurred.

Where the information and recommendations contained within this report are being used by others, GGC should be engaged during the design process to engage with the other members of the design team and review works being produced by the other design team members to confirm that it is consistent with the geotechnical report.

5 Environmental Issues

Unless specifically addressed in this report, environmental and contamination considerations are not included. The investigation methods required for environmental investigation often differ to those used for geotechnical investigations and the information contained within this report may not be appropriate for use by environmental engineering consultants and scientists.

This report was not prepared to address environmental issues and the client is responsible to ensure environmental considerations have been taken into account for the project. GGC can provide information on environmental engineering consultants, should this be required.

6 Construction

The method of ground investigation used for geotechnical investigations limits GGC's ability to know every detail about the ground conditions on site. GGC use reasonable engineering judgement to form an assessment of the subsurface conditions at the site based on information obtained at specific locations.

Ground conditions may be encountered during construction that were not anticipated during the geotechnical investigation. Should this be the case, GGC should be engaged to provide construction support as a means of mitigating the consequence of encountering unexpected ground conditions.



7 Responsibility of Others

GGC has prepared this report for the use by our client. GGC does not accept any responsibility from any third party, other than our client, who uses the information contained in this report. GGC takes no responsibility for any damages suffered by any third party as a consequence of any decisions or action that have been made based on this report.

Further information regarding the responsibility of clients and other third parties should also be obtained from the following:

- "Guidelines for the Provision of Geotechnical Information in Construction", published by the Institution of Engineers Australia;
- Australian Standard AS 2870 2011, Residential Slabs and Footings;
- Australian Standard, AS 5100 2004, Bridge Design Set; and,
- Any other Standard or Code of Practice applicable to the development.

FIGURE 1 SITE INVESTIGATION PLAN





Aerial Image © 2020 Google

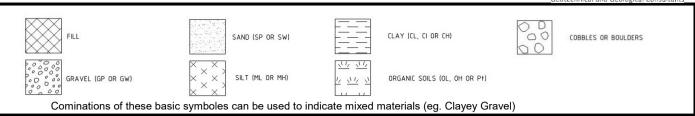
drawn	IHR	
approved		
date	1/09/2020	
scale	AS SHOWN	Geotechnical and Geological Consulta
original size	A4	

	dient: Q DESIGN AND CONSTTURCT PTY LTD										
	project: LOT 14 AND LOT 15 COURTNEY PLACE										
		WATTLE	GROVE								
nts	title:	SITE INVESTIG	ATION PL	AN							
	project no:	GGC201843	fig no:	FIGURE 1							

APPENDIX A TEST PIT LOGS

EXPLANATORY NOTES - SOIL DESCRIPTION



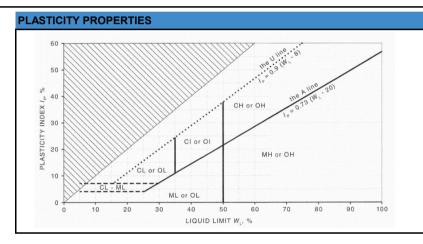


GP	Poorly Graded Gravel	SM	Silty Sand	CH	High Plasticity Clay
GW	Well Graded Gravel	SC	Clayey Sand	OL	Organic Soils (LP)
GM	Silty Gravel	ML	Low Plasticity Silt	ОН	Organic Soils (HP)
GC	Clayey Gravel	MH	High Plasticity Silt	PT	Peat
SP	Poorly Graded Sand	CL	Low Plasticity Clay	Describe	Cobbles and Boulders
SW	Well Graded Sand	CI	Medium Plasticity Clay	Fill	Fill

SOIL CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil descriptions are based on AS1726:2017, Section 6.2. Material properties are assessed in the filed by visual/tactile methods in combination with field testing techniques (where used).

PARTICLE SIZE Particle Size (mm) Soil Name BOULDERS >200 COBBLES 63 to 200 Coarse 20 to 63 **GRAVEL** 6 to 20 Medium 2 to 6 Fine 0.6 to 2.0 Coarse SAND 0.2 to 0.6 Medium Fine 0.075 to 0.2 SILT 0.002 to 0.075 **FINES** CLAY < 0.002



MINOR COMPONENTS									
TERM	ASSESSMENT GUIDE	PROPORTION OF MINOR COMPONENT IN:							
Trace of	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component.	Coarse grained soils: <5% Fine grained soils: <15%							
With some	Presence easily detected by feel or eye, soil properties little different to general properties if primary component.	Coarse grained soils: 5 - 12% Fine grained soils: 15 - 30%							

RESISTENCE TO EXCAVATION									
Symbol	Term	Description							
VE	Very easy	A.II							
Е	Easy	All resistences are relative to the							
F	Firm	selected method of							
Н	Hard	excavation.							
VH	Very hard								

MOISTURE CONDITION							
Symbol	DI Term Description						
D	Dry	Sands and gravels are free flowing. Clays and silts may be brittle or friable and powdery					
М	Moist	Soils are darker than in the dry condition and may feel cool. Sands and gravels tend to cohere.					
W	Wet	Soils exude free water. Sands and gravels tend to cohere.					

CONSIST	CONSISTENCY AND DENSITY												
Symbol	Term	Undrained Shear Strength (kPa)	SPT "N"	DCP blows per 100mm		Symbol	Term	Density Index (%)	SPT "N"	DCP blows per 100mm	PSP blows per 300mm		
VS	Very soft	0 to 12	0 to 2	<1		VL	Very Loose	<15	0 to 4	<1	0 to 2		
S	Soft	12 to 25	2 to 4	<1		L	Loose	15 to 35	4 to 10	1 to 2	2 to 6		
F	Firm	25 to 50	4 to 8	1 to 2		MD	Medium Dense	35 to 65	10 to 30	2 to 3	6 to 8		
St	Stiff	50 to 100	8 to 15	3 to 4		D	Dense	65 to 85	30 to 50	4 to 8	8 to 15		
VSt	Very Stiff	100 to 200	15 to 30	5 to 10		VD	Very Dense	>85	>50	>8	>15		
Н	Hard	>200	>30	>10		Note: PSP correlations only valid 450mm depth							

Consistency and density may also be inferred from excavation performance and material behaviour.



LOCATION: Wattle Grove

CLIENT: QDC

Penetrometer Test Results AS1289.6.3.2

DATE: 27 August 2020

Project ID: GGC201843

PROJECT: Lot 14 and 15 Courtney Place **TESTED BY: IHR** HAMMER MASS: 9 kg

SOIL TYPE: Sand over Clay/sandy Clay/sandy Clay HAMMER DROP HEIGHT: 510mm

Test Location	TP01	TP02	TP03	TP04	TP05	TP06			
Test Depth mm	Blows/100mm								
0-100	SET	SET	SET	SET	SET	SET			
100-200	2	5	4	1	3	2			
200-300	2	4	5	2	2	3			
300-400	3	2	6	3	1	3			
400-500	2	2	4	2	1	3			
500-600	3	3	3	2	1	3			
600-700	3	3	2	3	0.5	4			
700-800	3	2	2	2	0.5	3			
800-900	3		1	2					
900-1000									
Test Location									
Test Depth mm			Blows/	<u>'</u> 100mm					
0-100	SET	SET	SET	SET	SET	SET			
100-200									
200-300									
300-400									
400-500									
500-600									
600-700									
700-800									
800-900									
900-1000									
Test Location									
Test Depth mm		1	DI-	′100mm					

Test Location										
Test Depth mm		Blows/100mm								
0-150	SET	SET	SET	SET	SET	SET				
0-100										
100-200										
200-300										
300-400										
400-500										
500-600										
600-700										
700-800										
800-900										
900-1000										

TEST PIT NUMBER: TP01

PAGE: 1 OF

PROJECT NUMBER: GGC201843

PROJECT NAME: Geotechnical Investigation

PROJECT LOCATION: Lot 14 and 15 Courtney Place, Wattle Grove



Geotechnical and Geological Consultant

DATUM: MGA94 Zone 50

ELEVATION (mAHD): 13.1

EASTING (m): 404041

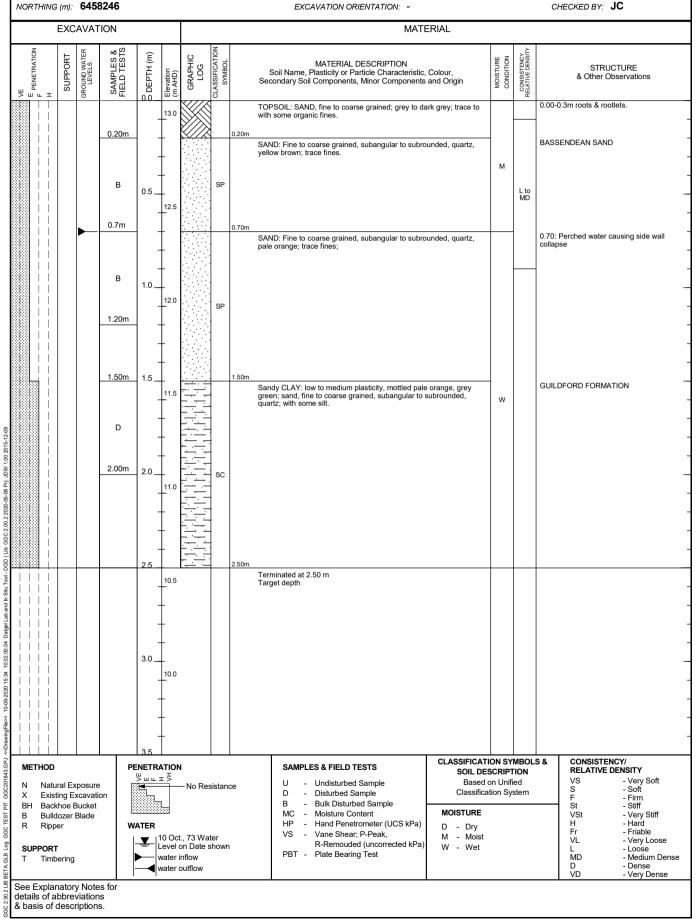
EQUIPMENT: 8t Backhoe

EXCAVATION LENGTH: 3 m

DATE COMPLETED: 27-Aug-20

EXCAVATION WIDTH: 0.6 m

LOGGED BY: IHR



TEST PIT NUMBER: TP02

PROJECT NUMBER: GGC201843

NORTHING (m): 6458316

PROJECT NAME: Geotechnical Investigation

PROJECT LOCATION: Lot 14 and 15 Courtney Place, Wattle Grove



CHECKED BY: JC

DATUM: MGA94 Zone 50 EQUIPMENT: 8t Backhoe DATE STARTED: 27-Aug-20 ELEVATION (mAHD): 13.7 EXCAVATION LENGTH: 3 m DATE COMPLETED: 27-Aug-20 EASTING (m): 404053 EXCAVATION WIDTH: 0.6 m LOGGED BY: IHR

EXCAVATION ORIENTATION: -

EXCAVATION MATERIAL CLASSIFICATION SYMBOL DEPTH (m) SAMPLES 8 FIELD TEST MOISTURE CONSISTENCY RELATIVE DENSIT GRAPHIC SUPPORT MATERIAL DESCRIPTION Soil Name, Plasticity or Particle Characteristic, Colour, Secondary Soil Components, Minor Components and Origin GROUND WAT LEVELS P00 STRUCTURE Elevation (m AHD) & Other Observations шш 0.00-0.4m roots & rootlets TOPSOIL: SAND, fine to coarse grained; grey to dark grey; trace to with some organic fines. BASSENDEAN SAND SAND: Fine to coarse grained, subangular to subrounded, quartz, pale brown; trace fines. MD 13.5 SP GUILDFORD FORMATION CLAY: Medium plasticity; molted pale brown, orange brown; with some fine to coarse grained subangular sand. 0.5 CI S to St 13.0 Silty CLAY, Low to medium, mottled off white, pale brown; trace fine to coarse grained, subangular to subrounded gravel of limestone nodules; fragments of extremely weather material/residual soil 0.8m Unit boundary dipping towards MUCHEA LIMESTONE 1.00m 1.0 \dots 1.0m becoming off white; occasional grey green patches of clayey material. D 1.50m M to W Terminated at 2.50 m Target depth 3.0 10.5 CLASSIFICATION SYMBOLS & SOIL DESCRIPTION CONSISTENCY/ PENETRATION SAMPLES & FIELD TESTS RELATIVE DENSITY <u>ш</u>⊾ ∓ ₹ VS S F St Based on Unified - Very Soft - Soft - Undisturbed Sample Natural Exposure No Resistance Disturbed Sample Classification System D Existing Excavation - Firm - Stiff Bulk Disturbed Sample Backhoe Bucket BH MOISTURE - Very Stiff - Hard MC Moisture Content VSt Bulldozer Blade ΗP Hand Penetrometer (UCS kPa) D - Dry M - Moist W - Wet Ripper WATER Vane Shear; P-Peak, Fr VL - Friable 10 Oct., 73 Water Level on Date shown - Very Loose - Loose - Medium Dense R-Remouded (uncorrected kPa) SUPPORT PBT - Plate Bearing Test L MD water inflow Timbering water outflow D VD - Dense - Very Dens See Explanatory Notes for details of abbreviations & basis of descriptions.

PROJECT NUMBER: GGC201843

DATUM: MGA94 Zone 50

ELEVATION (mAHD): 13.6

NORTHING (m): 6458305

EASTING (m): 404101

PROJECT NAME: Geotechnical Investigation
PROJECT LOCATION: Lot 14 and 15 Courtney Place, Wattle Grove



Geotechnical and Geological Consultants

CHECKED BY: JC

EQUIPMENT: 8t Backhoe DATE STARTED: 27-Aug-20 EXCAVATION LENGTH: 3 m DATE COMPLETED: 27-Aug-20 EXCAVATION WIDTH: 0.6 m LOGGED BY: IHR

	EXC	AVATI	ON				_		MATE	RIAL	_		
VE E PENETRATION F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	S DEРТН (m)	Elevation (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	Se	MATERIAL DESCRIPTION Soil Name, Plasticity or Particle Characteristic, C condary Soil Components, Minor Components a	Colour, nd Origin	MOISTURE	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
				0.0	13.5			TOI	PSOIL: SAND, fine to coarse grained; grey to dark some organic fines.	k grey; trace to			0.00-0.3m roots & rootlets.
				0.5 _	-			bro	ND: Fine to coarse grained, subangular to subrou wn; trace fines. .3m becoming pale brown.	nded, quartz,	M	MD	BASSENDEAN SAND
					13.0		SP				IVI	L	
				-	12.5				.1m becoming pale orange.		w		1.10: Perched water causing side wall collapse
				1.5 _	12.0			Cla coa lime	yey SAND/Sandy CLAY: orange mottled, grey, tr rse grained, subangular to subrounded gravel of stone; trace fine grained, rounded pisolites.	ace of fine to weathered			GUILDFORD FORMATION
				2.0 _	11.5		CI				M		
				2.5	11.0				minated at 2.50 m get depth				
				3.0	10.5			ı di	go. 30pui				
X Exis BH Bac B Bull R Ripp SUPPOR	ural Ex sting Ex khoe E dozer I per		n	- 	10 Oct	– No Res t., 73 Wa on Date s	ter	e	SAMPLES & FIELD TESTS U - Undisturbed Sample D - Disturbed Sample B - Bulk Disturbed Sample MC - Moisture Content HP - Hand Penetrometer (UCS kPa) VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa) PBT - Plate Bearing Test	CLASSIFICATIC SOIL DESC Based or Classificatic MOISTURE D - Dry M - Moist W - Wet	CRIPT n Unifi	TION ied	S & CONSISTENCY/ RELATIVE DENSITY VS - Very Soft F - Firm St - Stiff VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Den D - Dense VD - Very Dense

EXCAVATION ORIENTATION: -

PAGE: 1 OF

PROJECT NUMBER: GGC201843

DATUM: MGA94 Zone 50

ELEVATION (mAHD): 13.8

NORTHING (m): 6458272

EASTING (m): 404115

PROJECT NAME: Geotechnical Investigation

PROJECT LOCATION: Lot 14 and 15 Courtney Place, Wattle Grove



Geotechnical and Geological Consultants

CHECKED BY: JC

EQUIPMENT: 8t Backhoe

EXCAVATION LENGTH: 3 m

EXCAVATION WIDTH: 0.6 m

DATE STARTED: 27-Aug-20

DATE COMPLETED: 27-Aug-20

LOGGED BY: IHR

EXCAVATION MATERIAL CLASSIFICATION SYMBOL SAMPLES 8 FIELD TEST DEPTH (m) MOISTURE CONSISTENCY RELATIVE DENSIT GRAPHIC SUPPORT MATERIAL DESCRIPTION Soil Name, Plasticity or Particle Characteristic, Colour, Secondary Soil Components, Minor Components and Origin GROUND WAT LEVELS P00 STRUCTURE Elevation (m AHD) & Other Observations шш FILL: Sandy GRAVEL, fine grained, angular, of mixed lithology; blue grey; sand fine to coarse grained, angular, mixed lithology. 0.1-0.8m with some roots & rootlets BASSENDEAN SAND SAND: Fine to coarse grained, subangular to subrounded, quartz, brown; trace fines. 13.5 ... 0.4m becoming orange with some fines 0.5 13.0 SP M to W GUILDFORD FORMATION Clayey SAND: orange mottled pale orange 1.60: Perched water causing side wall collapse 1.6m to 2.2m 12.0 W 2.0 Sandy CLAY: Medium plasticity; mottled orange, grey, occasional weakly cemented. CI M to W Terminated at 2.50 m Target depth 11.0 3.0 10.5 CLASSIFICATION SYMBOLS & SOIL DESCRIPTION CONSISTENCY/ PENETRATION SAMPLES & FIELD TESTS RELATIVE DENSITY <u>шшт</u>= VS S F St Based on Unified - Very Soft - Soft - Undisturbed Sample Natural Exposure No Resistance Disturbed Sample Classification System D Existing Excavation - Firm - Stiff Bulk Disturbed Sample Backhoe Bucket BH MOISTURE VSt H - Very Stiff - Hard MC Moisture Content Bulldozer Blade ΗP Hand Penetrometer (UCS kPa) D - Dry M - Moist W - Wet Ripper WATER Vane Shear; P-Peak, Fr VL - Friable 10 Oct., 73 Water Level on Date shown - Very Loose - Loose - Medium Dense R-Remouded (uncorrected kPa) SUPPORT PBT - Plate Bearing Test L MD water inflow Timbering water outflow D VD - Dense - Very Dens See Explanatory Notes for details of abbreviations & basis of descriptions.

EXCAVATION ORIENTATION: -

PAGE: 1 OF

PROJECT NUMBER: GGC201843

DATUM: MGA94 Zone 50

ELEVATION (mAHD): 13.6

NORTHING (m): 6458256

EASTING (m): 404165

PROJECT NAME: Geotechnical Investigation

PROJECT LOCATION: Lot 14 and 15 Courtney Place, Wattle Grove



DATE COMPLETED: 27-Aug-20

DATE STARTED: 27-Aug-20

LOGGED BY: IHR
CHECKED BY: JC

EXCAVATION MATERIAL CLASSIFICATION SYMBOL SAMPLES 8 FIELD TEST MOISTURE CONSISTENCY RELATIVE DENSIT GRAPHIC SUPPORT MATERIAL DESCRIPTION Soil Name, Plasticity or Particle Characteristic, Colour, Secondary Soil Components, Minor Components and Origin GROUND WAT LEVELS LOG STRUCTURE Elevation (m AHD) & Other Observations шш SAND: Fine to coarse grained, subangular to subrounded, quartz, grey brown; trace fines. 0.00-0.3m roots & rootlets. BASSENDEAN SAND 13.5 SP MD SAND: Fine to coarse grained, subangular to subrounded, quartz, orange; trace fines. 0.5 to VI 13.0 SP ...becoming orange mottled pale orange M to W 1.0 12.5 GUILDFORD FORMATION 1.0 - 2.0m Perched water Clayey SAND: fine to coarse grained, subangular to subrounded, quartz; pale brown mottled orange; low plasticity. SC 12.0 Sandy CLAY: Medium plasticity, mottled orange, grey. М CI Terminated at 2.10 m Refusal - Collapse (Due to water) 11.0 3.0 10.5 CLASSIFICATION SYMBOLS & SOIL DESCRIPTION CONSISTENCY/ PENETRATION SAMPLES & FIELD TESTS RELATIVE DENSITY <u>шшт</u>= VS S F St Based on Unified - Very Soft - Soft - Undisturbed Sample Natural Exposure No Resistance Disturbed Sample Classification System D Existing Excavation - Firm - Stiff Bulk Disturbed Sample Backhoe Bucket BH MOISTURE VSt H - Very Stiff - Hard MC Moisture Content Bulldozer Blade ΗP Hand Penetrometer (UCS kPa) D - Dry M - Moist W - Wet Ripper WATER Vane Shear; P-Peak, Fr VL - Friable 10 Oct., 73 Water Level on Date shown - Very Loose - Loose - Medium Dense R-Remouded (uncorrected kPa) SUPPORT PBT - Plate Bearing Test L MD water inflow Timbering water outflow D VD - Dense - Very Dens See Explanatory Notes for details of abbreviations & basis of descriptions.

EQUIPMENT: 8t Backhoe

EXCAVATION LENGTH: 3 m

EXCAVATION WIDTH: 1 m

EXCAVATION ORIENTATION:

PROJECT NUMBER: GGC201843

PROJECT NAME: Geotechnical Investigation
PROJECT LOCATION: Lot 14 and 15 Courtney Place, Wattle Grove



Geotechnical and Geological Consultants

DATUM: MGA94 Zone 50 EQUIPMENT: 8t Backhoe DATE STARTED: 27-Aug-20 ELEVATION (mAHD): 13 EXCAVATION LENGTH: 3 m DATE COMPLETED: 27-Aug-20 EASTING (m): 404116 EXCAVATION WIDTH: 0.6 m LOGGED BY: IHR

NORTHING (m): 6458198 EXCAVATION ORIENTATION: -CHECKED BY: JC

	EXC	AVAT							MATERIAL				
VE E PENETRATION F H	SUPPORT	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	S DEPTH (m)	Elevation (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	Se	MATERIAL DESCRIPTION Soil Name, Plasticity or Particle Characteristic, Colour, condary Soil Components, Minor Components and Origin	MOISTURE	CONSISTENCY RELATIVE DENSITY		STRUCTURE & Other Observations
				-				TC 10m wit	PSOIL: SAND, fine to coarse grained; grey to dark grey; trace to a some organic fines.				.5m trace roots & rootlets
				- - 0.5	12.5		SP	ра	ND: Fine to medium grained, subangular to subrounded, quartz, brown. 0.3 becoming fine to coarse, pale brown mottled orange.		L to MD	BASS	SENDEAN SAND
		Not Encountered		1.0	12.0			fin	ndy CLAY: Medium plasticity, mottled grey, orange brown; sand to coarse, subangular to subrounded, quartz, trace fine, angular ubangular gravel of cemented nodules.	M		GUILI	DFORD FORMATION
		Z		- 1.5 _ -	11.5		CI						
				2.0	11.0				2.0m becoming variably moderately cemented; grey mottled nge.				
				2.5	10.5				minated at 2.50 m get depth				
				3.0	10.0								
X Exis BH Back B Bullo R Ripp SUPPOR	ıral Ex ting Ex khoe E dozer f ber		on .	- I	10 Oct Level o	– No Res t., 73 Wa on Date s	ter		SAMPLES & FIELD TESTS U - Undisturbed Sample D - Disturbed Sample B - Bulk Disturbed Sample MC - Moisture Content HP - Hand Penetrometer (UCS kPa) VS - Vane Shear; P-Peak, R-Remouded (uncorrected kPa) PBT - Plate Bearing Test CLASSIFICA SOIL DE Based Classific MOISTURE D - Dry M - Moist W - Wet	SCRIP on Unif	TION ied	S &	CONSISTENCY/ RELATIVE DENSITY VS

APPENDIX B LABORATORY TEST RESULTS



TEST CERTIFICATE

CALIFORNIA BEARING RATIO: AS 1289.6.1.1

CLIENT: GGC Pty Ltd, 439 Vincent Street West, Leederville

JOB NO .: 15_101 SAMPLE NO.: 264

CLIENT REFERENCE: TP01 (0.20m to 0.70m)

DATE SAMPLED: Unknown DATE TESTED: 07.09.2020 SAMPLE DESCRIPTION: Sand FEATURE:

PROJECT: Job No. GGC201843, Project: Lot 14 - 15 Courtney Place, Wattle Grove

TEST CONDITIONS OF SPECIMEN

PERIOD OF SOAKING 4 days SURCHARGING OF SPECIMEN 4.50 kg COMPACTIVE EFFORT USED IN MOULDING SPECIMEN: 9 blows, 5 layers using a modified hammer

TEST RESULTS

MAXIMUM DRY DENSITY 1.86 t/m³ **OPTIMUM MOISTURE CONTENT** 10.7 % % Retained on the 19mm sieve 0% **OVERSIZE MATERIAL** Excluded

DRY DENSITY

SPECIMEN BEFORE SOAKING 1.77 t/m³ SPECIMEN AFTER SOAKING 1.76 t/m³

DRY DENSITY RATIO

SPECIMEN BEFORE SOAKING 95.0 % SPECIMEN AFTER SOAKING 95.0 %

MOISTURE CONTENT (AS 1289.2.1.1)

SPECIMEN AT COMPACTION 10.2 % SPECIMEN AFTER SOAKING 14.9 % TOP 30 mm LAYER OF SPECIMEN AFTER PENETRATION 14.5 % REMAINING DEPTH OF SPECIMEN AFTER PENETRATION 15.1 %

MOISTURE RATIO

SPECIMEN AT COMPACTION 95.5 % SPECIMEN AFTER SOAKING 139.5 % TOP 30 mm LAYER OF SPECIMEN AFTER PENETRATION 135.5 % REMAINING DEPTH OF SPECIMEN AFTER PENETRATION 141.0 % SPECIMEN SWELL 0.0 %

CALIFORNIA BEARING RATIO

30 % AT 2.50mm PENETRATION

CALIFORNIA BEARING RATIO

30 % AT 5.00mm PENETRATION

SAMPLING PROCEDURES: Tested as received

REMARKS:



Report No: MC 15_101_1

Issue No:

Doc Name: 1289611S Rev 011 Date 01.02.2019

A Briggs, Signatory 15_101cbr264.xlsm 08.09.2020

APPROVED

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TEST CERTIFICATE DETERMINATION OF THE DRY DENSITY/MOISTURE CONTENT RELATIONSHIP OF A SOIL USING MODIFIED COMPACTIVE EFFORT: AS1289.5.2.1

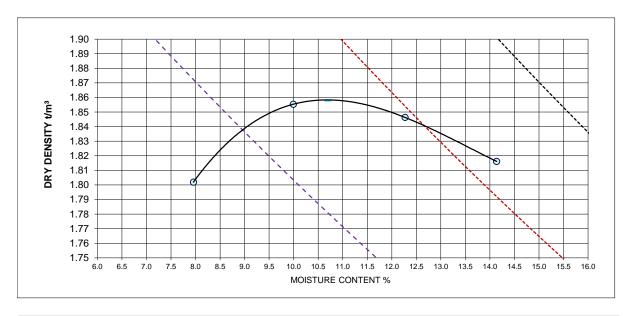
CLIENT: GGC Pty Ltd, 439 Vincent Street West, Leederville

JOB NO.: 15_101 SAMPLE NO.: 264

CLIENT REFERENCE: TP01 (0.20m to 0.70m)

DATE SAMPLED Unknown
DATE TESTED: 03.09.2020
SAMPLE DESCRIPTION: Sand
FEATURE: -

PROJECT: Job No. GGC201843, Project: Lot 14 - 15 Courtney Place, Wattle Grove



MODIFIED MAXIMUM DRY DENSITY

MODIFIED OPTIMUM MOISTURE CONTENT

RETAINED 19.0 mm SIEVE

0 %

RETAINED 37.5 mm SIEVE

0 %

SAMPLING PROCEDURES Tested as received

REMARKS: Type A Mould (1 litre) used for this test.

Estimated Liquid Limit Curing Time: 2.00 hrs



ACCREDITED FOR COMPLIANCE WITH ISO/IEC 17025 -

TESTING

Report No: MC 15_101_2

Issue No: 1

Doc Name: MDDAS5 Rev 008 Date 24.01.2019

File name: 15_101mdd.xlsm

APPROVED:

A Briggs, Signatory

DATE: 08.09.2020

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TEST CERTIFICATE PARTICLE SIZE DISTRIBUTION STANDARD METHOD OF ANALYSIS BY SIEVING: AS 1289.3.6.1

CLIENT: GGC Pty Ltd, 439 Vincent Street West, Leederville

JOB NO. : 15_101 SAMPLE NO. : 264

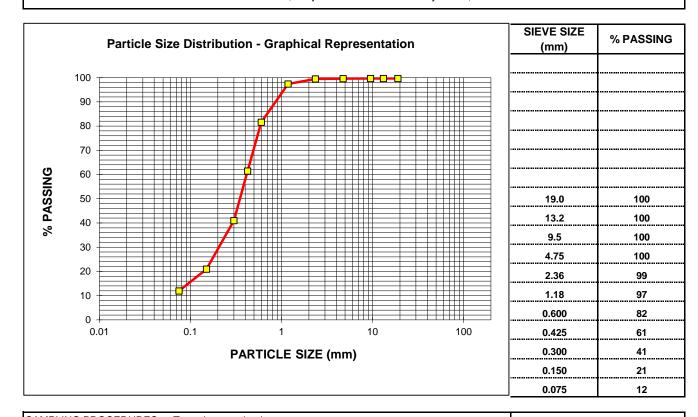
CLIENT REFERENCE: TP01 (0.20m to 0.70m)

DATE SAMPLED: Unknown

DATE TESTED: 2.09.2020 & 7.09.2020

SAMPLE DESCRIPTION : Sand FEATURE: -

PROJECT: Job No. GGC201843, Project: Lot 14 - 15 Courtney Place, Wattle Grove



SAMPLING PROCEDURES: Tested as received REMARKS: Wet Sieved. ACCREDITED FOR COMPLIANCE WITH ISO/IEC 17025 TESTING Report No: MC 15_101_3 APPROVED: Issue No: Doc Name: 1289361 Rev 004 Date 30.01.2019 A Briggs, Signatory File name: 15 101psd264.xlsm DATE: 08.09.2020

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TEST CERTIFICATE PARTICLE SIZE DISTRIBUTION STANDARD METHOD OF ANALYSIS BY SIEVING: AS 1289.3.6.1

CLIENT: GGC Pty Ltd, 439 Vincent Street West, Leederville

JOB NO. : 15_101 SAMPLE NO. : 265

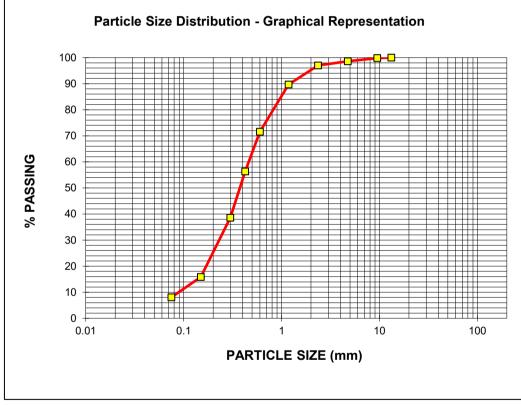
CLIENT REFERENCE: TP01 (1.0m to 1.5m)

DATE SAMPLED: Unknown

DATE TESTED: 02.09.2020 & 08.09.2020

SAMPLE DESCRIPTION: Sand FEATURE: -

PROJECT: Job No. GGC201843, Project: Lot 14 - 15 Courtney Place, Wattle Grove



SIEVE SIZE (mm)	% PASSING
13.2	100
9.5	100
4.75	99
2.36	97
1.18	90
0.600	72
0.425	56
0.300	39
0.150	16
0.075	8

CIEVE CIZE

SAMPLING PROCEDURES: Tested as received

REMARKS: Wet Sieved.

NATA ACCREDITED FOR COMPLIANCE WITH ISO/IEC 17025 - TESTING

A Friggs, Signatory

Report No: MC 15_101_4

Issue No:

Doc Name: 1289361 Rev 004 Date 30.01.2019

File name: 15_101psd265.xlsm

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DATE: 08.09.2020

APPROVED:



TEST CERTIFICATE PARTICLE SIZE DISTRIBUTION STANDARD METHOD OF ANALYSIS BY SIEVING: AS 1289.3.6.1

CLIENT: GGC Pty Ltd, 439 Vincent Street West, Leederville

JOB NO. : 15_101 SAMPLE NO. : 266

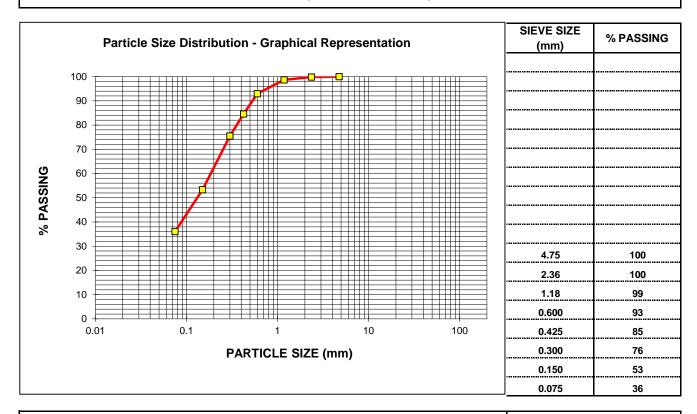
CLIENT REFERENCE: TP01 (1.5m to 2.0m)

DATE SAMPLED: Unknown

DATE TESTED: 2.09.2020 & 8.09.2020

SAMPLE DESCRIPTION : Sand FEATURE: -

PROJECT: Job No. GGC201843, Project: Lot 14 - 15 Courtney Place, Wattle Grove



SAMPLING PROCEDURES: Tested as received REMARKS: Wet Sieved. ACCREDITED FOR COMPLIANCE WITH ISO/IEC 17025 TESTING Report No: MC 15_101_5 Issue No: APPROVED: A Briggs, Signatory Doc Name: 1289361 Rev 004 Date 30.01.2019 File name: 15 101psd266.xlsm DATE: 08.09.2020 This document shall not be reproduced except in full without approval of the laboratory. Results relate only to the items tested



TEST CERTIFICATE

CONSISTENCY LIMIT - ATTERBERG TEST METHODS: AS 1289.3.1.1, AS 1289.3.2.1, AS 1289.3.3.1, AS 1289.3.4.1, MOISTURE CONTENT: AS 1289.2.1.1

CLIENT: GGC Pty Ltd, 439 Vincent Street West, Leederville

JOB NO.: 15_101 SAMPLE NO.: 266

CLIENT REFERENCE: TP01 (1.5m to 2.0m)

DATE SAMPLED: Unknown

DATE TESTED: 08.09.2020

SAMPLE DESCRIPTION: Sand

FEATURE: -

PROJECT: Job No. GGC201843, Project: Lot 14 - 15 Courtney Place, Wattle Grove

LIQUID LIMIT 30 %
PLASTIC LIMIT 18 %
PLASTICITY INDEX 12 %
LINEAR SHRINKAGE 6.0 %

SAMPLING PROCEDURES: Tested as received

REMARKS: Oven dried (50° C) Dry sieved.

Cracking present in Linear Shrinkage

ACCREDITED FOR COMPLIANCE WITH ISO/IEC 17025 - TESTING

A Briggs, Signatory

Report No: MC 15_101_6

Issue No:

Doc Name: PI_ATTER Rev 006 Date 29.01.2019

File name: 15_101pi266.xlsm DA

DATE: 9/09/2020

APPROVED

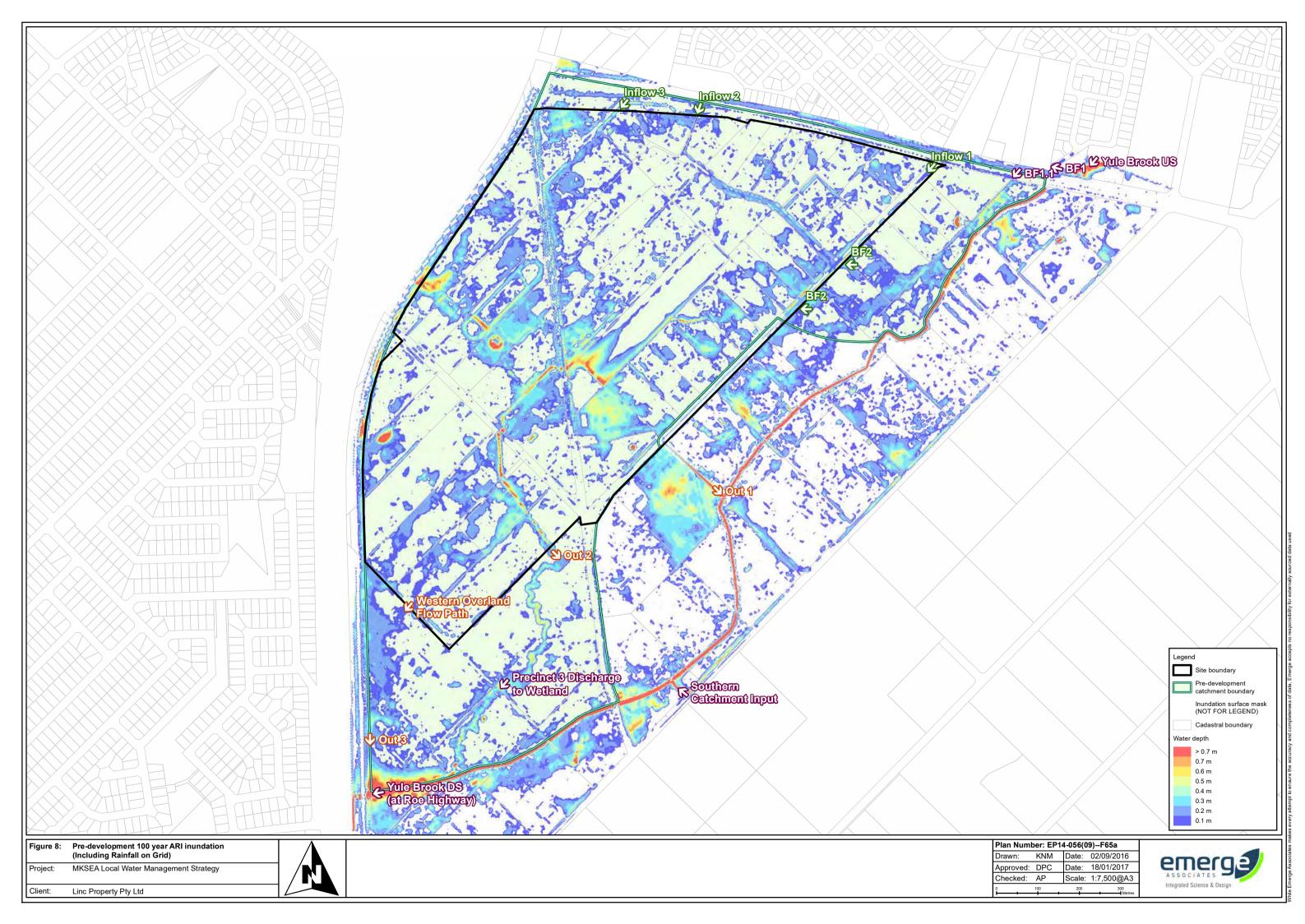
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Appendix C

Pre-development 1% AEP model extract



Prepared by Emerge Associates (2017)



Appendix D

Groundwater monitoring data



Prepared by Emerge Associates (2016)

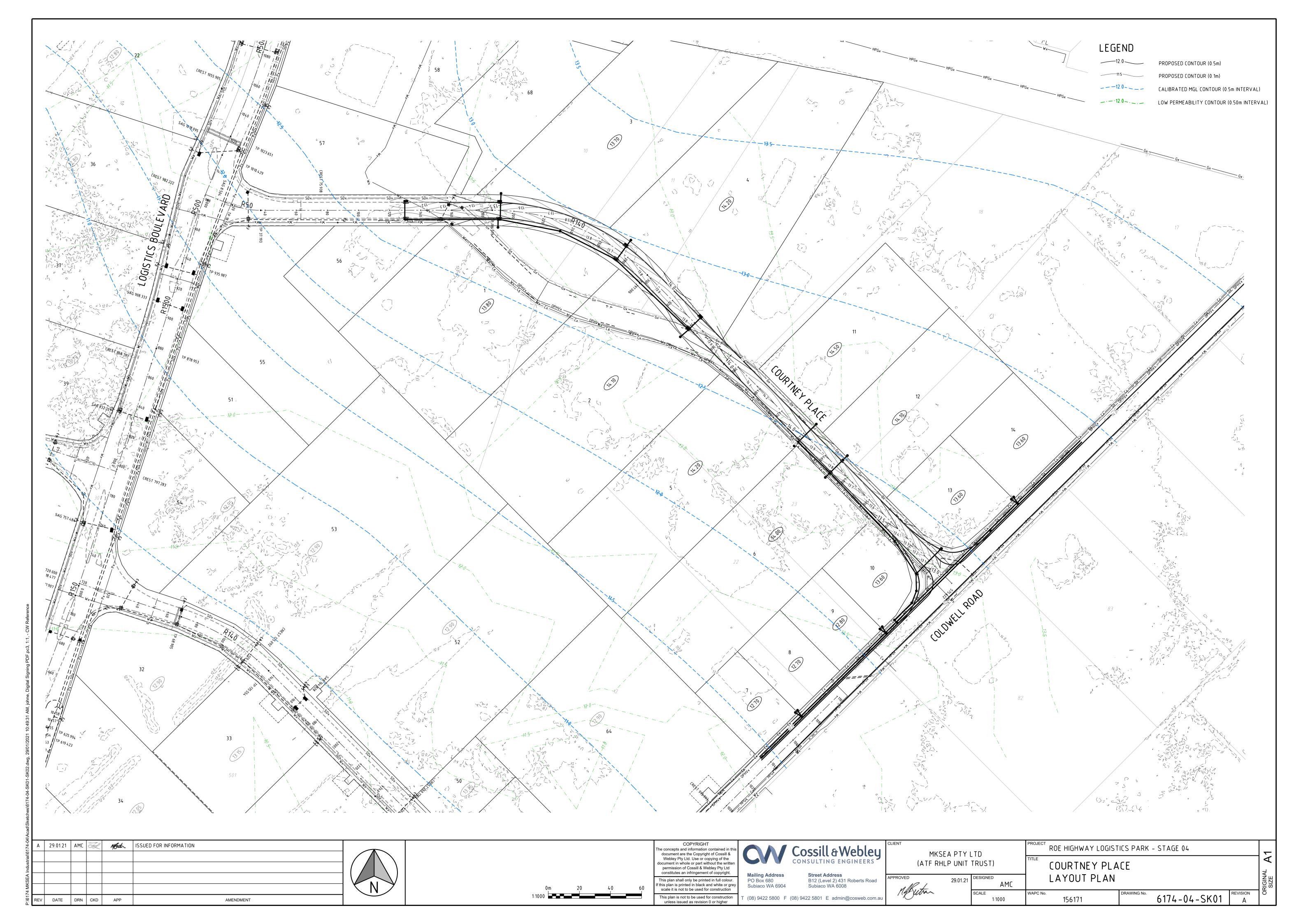
Bore ID	Groundwa	Groundwater Levels, mAHD (mBGL)					
	14/06/16	15/07/16	22/07/16				
MB01	#N/A	#N/A	11.98				
	#N/A	#N/A	(3.01)				
MB02	9.47	10.03	10.26				
	(2.79)	(2.23)	(2)				
MB03	9.19	9.79	9.97				
	(2.71)	(2.1)	(1.92)				
MB04	8.35	8.92	9.08				
	(2.71)	(2.14)	(1.98)				
MB05	7.39	8.17	8.44				
	(4.07)	(3.29)	(3.02)				
MB06	7.82	8.47	8.7				
	(4.53)	(3.88)	(3.65)				
MB07	6.42	6.93	7.13				
	(2.63)	(2.12)	(1.92)				
MB08	#N/A	#N/A	7.8				
	#N/A	#N/A	(2.15)				
MB09	#N/A	#N/A	13.22				
	#N/A	#N/A	(0.92)				
GW11	#N/A	9.26	9.36				
	#N/A	(2.89)	(2.79)				
GW1	12.4	12.32	12.59				
	(0.39)	(0.47)	(0.2)				

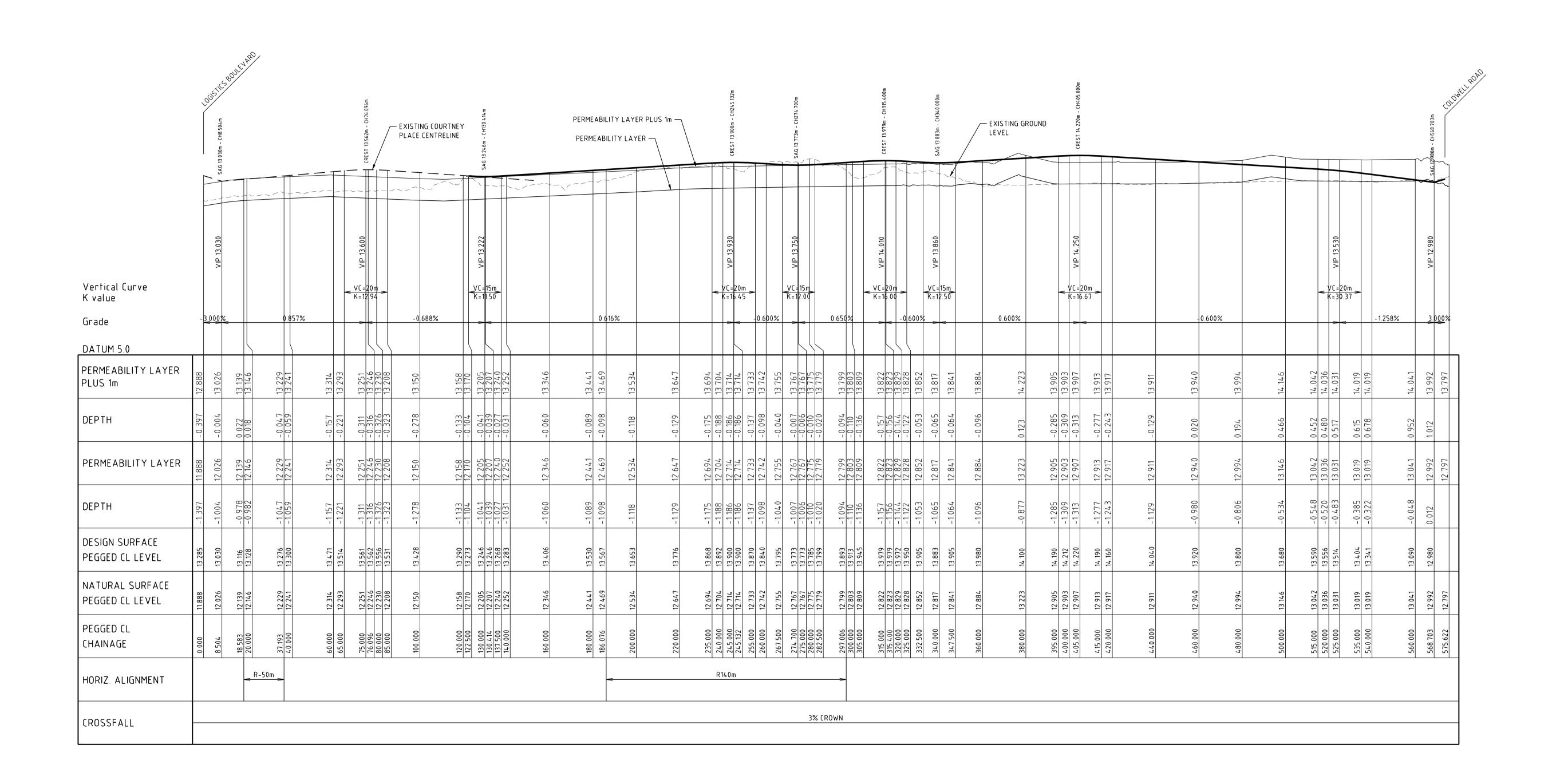
Appendix E

emerge

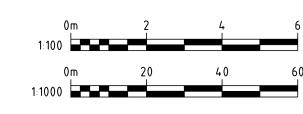
Earthworks design

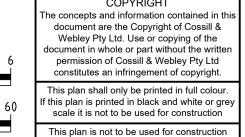
Prepared by Cossill and Webley (2021)





REV	DATE	DRN	CKD	APP	AMENDMENT	1
						1
Α	29.01.21	AMC	Æ	Meta	ISSUED FOR INFORMATION	







		,	CONSULTING ENGINEERS	
	Mailing Address PO Box 680 Subiaco WA 6904		Street Address B12 (Level 2) 431 Roberts Road Subiaco WA 6008	APF
Т	(08) 9422 5800	F	(08) 9422 5801 E admin@cosweb.com.au	

CLIENT	-			
	MK	SEA PTY I	_TD	
	(ATF R	HLP UNIT	TRUST)	
APPRO	VED	29.01.21	DESIGNED	
	118.1	29.01.21		AMC
	161 VIIIAA		COALE	

1:1000 1:100

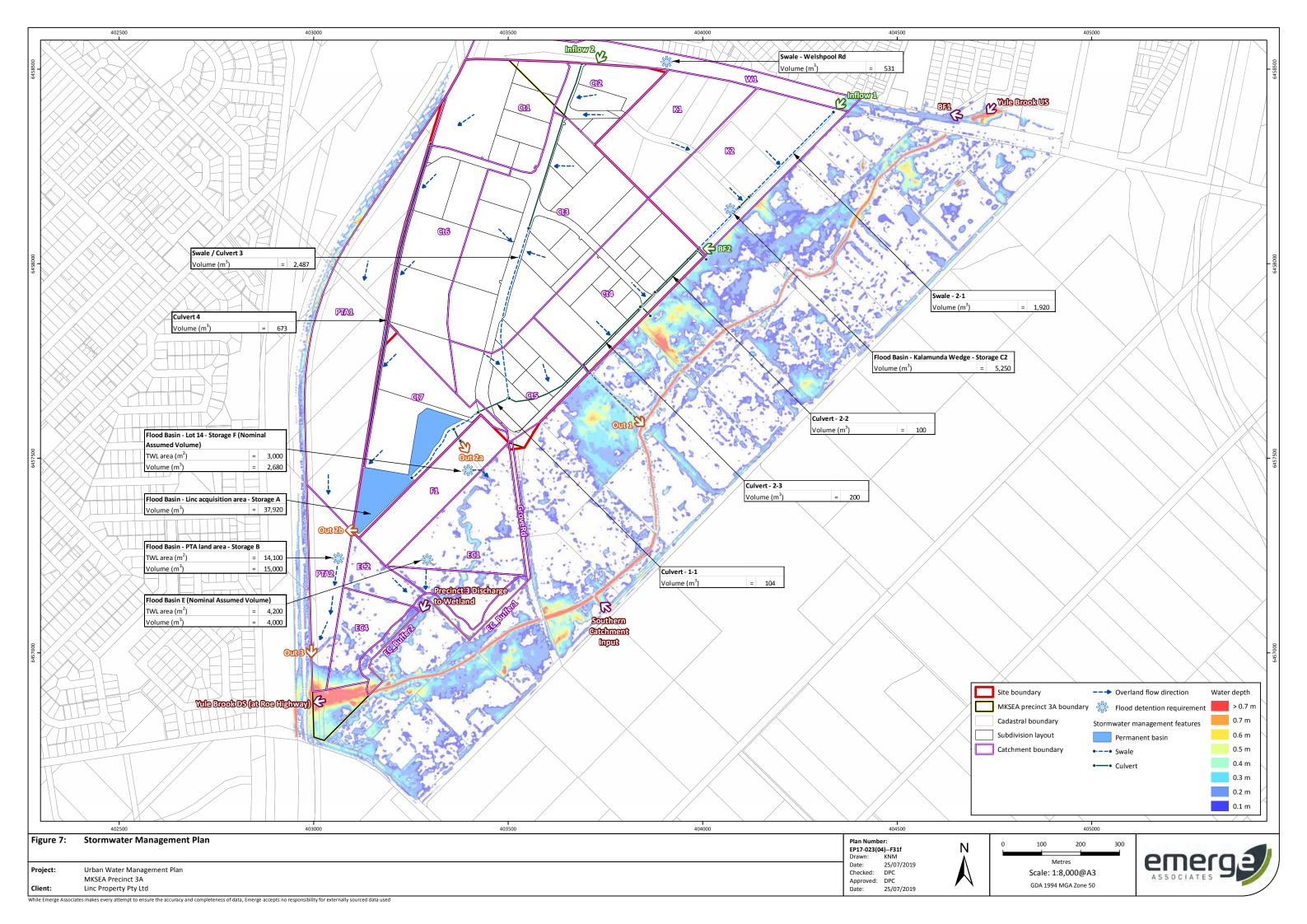
PROJECT	ROE HIGHWAY LOGIST	ICS PARK	- STAGE 04		1	
TITLE	COURTNEY PLACE					
WAPC No.	156171	DRAWING No.	6174-04-SK02	REVISION A	ORIGIN	

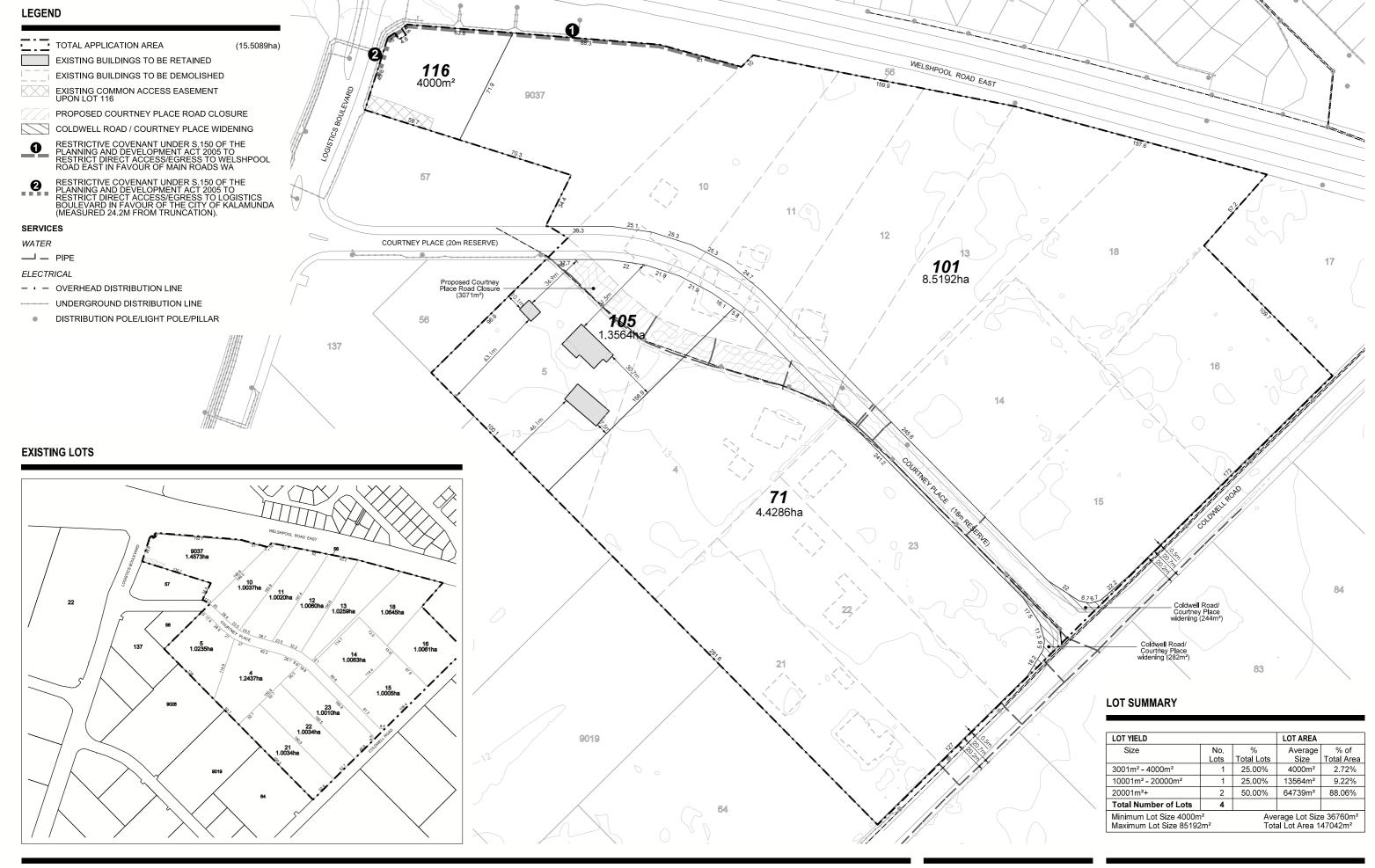
Appendix F

MKSEA Precinct 3A Stage 1-3 UWMP Extract - Stormwater Management Plan



Prepared by Emerge Associates (2019)





Plan of Subdivision - Freehold

MADDINGTON - KENWICK STRATEGIC EMPLOYMENT AREA - PRECINCT 3A

Taylor Burrell Barnett Town Planning & Design Level 7, 160 St Georges Terrace, Perth WA 6000 e: admin@tbbplanning.com.au p: (08) 9226 4276



Bigdeal Investments Pty Ltd c/- 37 Fortview Road MOUNT CLAREMONT WA 6010

4 October 2022

City of Kalamunda PO Box 42 Kalamunda WA 6076

Dear Sir/Madam

RE- SUPPORT OF LANDOWNER FOR INDUSTRIAL DEVELOPMENT (WAREHOUSE) ON LOTS 14, 15, 18 COURTNEY PLACE AND LOT 16 COLDWELL ROAD, WATTLE GROVE

I refer to the lodged application for development approval for a warehouse and incidental office across land identified as Lots 14, 15, 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove.

I confirm that I am the registered owner of the following land parcel:

1. Lot 86 on Diagram 89452 contained within Certificate of Title Volume 2067 Folio 492

I confirm that I have reviewed the submitted development plans and support the approval of the development by the Joint Development Assessment Panel. The proposed development is consistent with the current MRS 'Industrial' zoning of the land and my expectation that my land will be capable of being developed for a similar industrial activity in the short term.

Should you require further information please do not hesitate to contact the undersigned.

Yours faithfully

Michael Erawley

Coldwell Pty Ltd 15 Coldwell Road WATTLE GROVE WA 6107

4 October 2022

City of Kalamunda PO Box 42 Kalamunda WA 6076

Dear Sir/Madam

RE- SUPPORT OF LANDOWNER FOR INDUSTRIAL DEVELOPMENT (WAREHOUSE) ON LOTS 14, 15, 18 COURTNEY PLACE AND LOT 16 COLDWELL ROAD, WATTLE GROVE

We refer to the lodged application for development approval for a warehouse and incidental office across land identified as Lots 14, 15, 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove.

We confirm that we are the registered owners of the following land parcel:

Lot 85 on Diagram 89452 contained within Certificate of Title Volume 2067 Folio 491

We confirm that we have reviewed the submitted development plans and support the approval of the development by the Joint Development Assessment Panel. The proposed development is consistent with the current MRS 'Industrial' zoning of the land and our expectation that our land will be capable of being developed for a similar industrial activity in the short term.

Should you require further information please do not hesitate to contact the undersigned.

Yours faithfully

Coldwell Pty Ltd

Stephen Robertson (Director)

Michael Frawley (Director

John Frawley 21 Coldwell Road WATTLE GROVE WA 6107

City of Kalamunda PO Box 42 Kalamunda WA 6076

Dear Sir/Madam

RE- SUPPORT OF LANDOWNER FOR INDUSTRIAL DEVELOPMENT (WAREHOUSE) ON LOTS 14, 15, 18 COURTNEY PLACE AND LOT 16 COLDWELL ROAD, WATTLE GROVE

I, refer to the lodged application for development approval for a warehouse and incidental office across land identified as Lots 14, 15, 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove.

I confirm that I am the registered owner of the following land parcels:

- 1. Lot 84 on Diagram 89451 contained within Certificate of Title Volume 2135 Folio 626; and
- 2. Lot 83 on Diagram 89451 contained within Certificate of Title Volume 2135 Folio 625

I confirm that I have reviewed the submitted development plans and support the approval of the development by the Joint Development Assessment Panel. The proposed development is consistent with the current MRS 'Industrial' zoning of the land and my expectation that my land will be capable of being developed for a similar industrial activity in the short term.

Should you require further information please do not hesitate to contact the undersigned.

Joseph Kamley

Yours faithfully

John Joseph Frawley

Htn Group Pty Ltd 39 Coldwell Road, WATTLE GROVE WA 6107

4 October 2022

City of Kalamunda PO Box 42 Kalamunda WA 6076

Dear Sir/Madam

RE- SUPPORT OF LANDOWNER FOR INDUSTRIAL DEVELOPMENT (WAREHOUSE) ON LOTS 14, 15, 18 COURTNEY PLACE AND LOT 16 **COLDWELL ROAD, WATTLE GROVE**

I refer to the lodged application for development approval for a warehouse and incidental office across land identified as Lots 14, 15, 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove.

I confirm that I am the registered owner of the following land parcel:

1. Lot 82 on Diagram 89451 contained within Certificate of Title Volume 2135 Folio 624

I confirm that I have reviewed the submitted development plans and support the approval of the development by the Joint Development Assessment Panel. The proposed development is consistent with the current MRS 'Industrial' zoning of the land and my expectation that my land will be capable of being developed for a similar industrial activity in the short term.

Should you require further information please do not hesitate to contact the undersigned.

Yours faithfully

Sheldon Turner DIRECTOR HTN Group Pty Ltd



City of Kalamunda Design Review Panel Minutes

Thursday 29 September 2022

Meeting Date and Time:	Thursday 29 September 2022, 4:00PM Meeting concluded at 7pm				
Meeting Number:	DRP2022/2				
Meeting Venue:	City of Kalamunda Administration Co 2 Railway Road, Kalamunda	entre			
Meeting Items:	Item 5.1	Lodgement Consideration JDAP – DA22/0329– Warehouse and Incidental Office – Lots 14, 15, 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove			
<u>Attendance</u>					
DAC Members:	David Barr	Design Advisory Committee Member			
	Jurg Hunziker	Design Advisory Committee Member			
	Ross Montgomery	Design Advisory Committee Member Chair			
	Chris Melsom	Design Advisory Committee Member			
	,				
Officers in attendance:	Andrew Fowler-Tutt Manager Approval Services				
	Alisha Kozma	Statutory Planner			
Apologies	Patrick Beale	Design Advisory Committee Member			



Applicants:	Item 5.1	Jarrod Ross – TBB Glenn Coffey – Hesperia Sheldon Turner – Total PM

Item 5.1 – Lodgement Consideration JDAP – DA22/0329– Warehouse and Incidental Office – Lots 14, 15, 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove

DAC Recommendations:	 The integration of the offices with the overall design needs to be addressed with a view to improving the appearance, legibility, aesthetics and scale of the development from the street. The proponent should explore integrating staff amenities and façade treatments with the design of landscape spaces and the use of landscape generally to improve the overall appearance, amenity and legibility. The aesthetic of the overall development is not consistent with the significance of the site – entry point to the estate from the east. Recommendation to consider the locality of the foothills in materials and colour selection. Recommend integration of public art into the design of the building/façade.
General comments	 Previously DRP commented on Design Guidelines for the area - overall setting of development not consistent with LPP (Design Guidelines). Although functional from user point of view, the proposal appears as a big shed, with little consideration given to the role of the site as an entry to the estate and as a contemporary building in a modern commercial estate. it would be preferable for the applicant to address site planning, building aesthetics and the incorporation of public art and landscape architecture to optimize the appearance and profile of the development. This would also assist in developer reputation, attracting tenants and in the attraction and retention of staff. The proposal doesn't interface well to Courtney Place, with blank façade and scale of trees unlikely to sufficiently screen. Precinct tree replacement comparison – can the proponent consider an approach to replacing the original number of trees lost during site development. The placement of the office components at each end of the site appears to break the intention of a continuous presentation to the street and



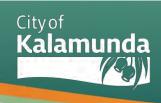
verge– this has the - potential to dilute the design outcomes and should be reviewed.

- Given the nature of the proposal (warehouse/distribution centre), design measures including landscape and planting options should be optimized to improve the presentation of the site and building over all and to limit the apparent scale of the warehouse.
- Office amenities are provided, but quality is mixed given one outdoor dining area is located within the landscaping edge and one adjoining the carparking areas.
- Location, scale, and architecture of the offices is underwhelming greater articulation, design, materials, legibility of entries. The proponent is encouraged to consider opportunities for additional greenery on the buildings and options to combine the offices to create a better scale for development. the opportunity of providing a courtyard to connect and/or be shared by the office accommodation should be considered in conjunction with better outdoor amenities and landscaping.
- Option to incorporate the offices into the warehouse, with a smaller portion sticking out of the warehouse(s).
- Signage postponed against design guidelines, can signage be provided at this stage of the development?
- Site fencing (proposed chain-link fencing to rear and sides, Palisade to streets) should be reviewed in line with design guidelines.
- Waste storage proposed within the warehouse where and how this would function (City to follow up?) access and egress for pickups.
- Reduce parking bays to provide additional landscaping noting the shortfall is significant but the bays exceed needs.
- Need to consider the office component. A possible option is to have glazing looking out onto courtyard with staff amenities and landscaping.
- Having the right consultants for each component, concern with regard to lack of architects and artists involved – think about who you engage.

Design principal Assessment:	MATRIX	Supported
		Pending further attention
		Not supported
		Not considered / discussed
		Not addressed as further information required



DESIGN PRINCIPAL	EVALUATION	DAC COMMENT
CONTEXT & CHARACTER		 Elevations, entry statement need to be better addressed. Doesn't present to the street at a level appropriate to the context. Consider the façade and how it can be better integrated. Needs a purposeful design outcome. Softness in interface from landscaping.
LANDSCAPE QUALITY		 Opportunities to landscape along streetscapes. Revisit ways to screen or incorporate into structure to break up blank walls. Reducing parking to increase landscaping.
BUILT FORM & SCALE		 Present better to the street. Better amenity required. Integrate public art into façade design and improve quality. Scale of incidental elements/structures aren't reflective of scale of overall design, warehouse well exceed scale of offices. Scope for improvement.
FUNCATIONALITY & BUILD QUALITY		 Office component has room for improvement. Acknowledge integration of two tenants and vehicle movements as positives. Warehouse is acknowledged to serve its purpose.
SUSTAINABILITY		 Acknowledge green star ambitions. Potential to improve microclimate of outside areas given hostile pedestrian/human scale context of industrial areas. Global response (within precinct) appears to be high, site-specific response does not



	provide clear evidence of leading sustainability design. • Encourage working with tenant
	to implement more sustainable
ANACNITY	initiatives i.e. solar panels.
AMENITY	Consider office outdoor areas, greater amonity and maximizing.
	greater amenity and maximizing shade.
	Clearly denoted pedestrian
	paths to be retained when
	revisiting office design
	Focus efforts on integrating
	office changes with staff
	outdoor amenities – think about
	the workers and what they can
	do at lunchtime.
LEGIBILITY	Clarity of front door locations –
	visibility and differentiate (where
	two separate buildings).
	Enhance the whole arrival and
	ease of identification.
	Require a level of sophistication
	in addressing the entry points
	(i.e. only colour differentiation is
	not sufficient).
	Recommend increasing the cappy to define outries.
SAFETY	canopy to define entries. • Separating cars and heavy
SALII	vehicles is a positive outcome.
	Surveillance to the street
	achieved.
	Lighting and surveillance to the
	rear/heavy vehicles may need to
	be considered.
COMMUNITY	Optimising landscape perimeter
	to soften impacts to residential
	uses across the street.
	Have a sympathetic edge to the
	corner lot (Welshpool and
	Coldwell).
	Integration of public art into
	building design is preferred.
	Shared larger staff amenities
	could create social
	opportunities for staff.



AESTH	HETICS	 Need to address as point of priority.
		 Not appealing and a high stakes entry location.
		 Integrated with impacts of office design, landscaping position
		and quality, public art integration and provision of amenities for staff.
		 Would encourage prioritization of local consultants/designers.
		 Consideration of place – how does it reflect the locality of the foothills.
		 Noting public art integration still must be undertaken with the artist and in accordance with policy.
		 Consideration of colour and material – what is the narrative of the building and design choices.

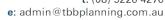
Chair

Chris Melsom

Approval:

City of Andrew Fowler-Tutt Kalamunda (08) 9257 9925

Contact: andrew.fowlertutt@kalamunda.wa.gov.au





taylorburrellbarnett.com.au

Our Ref: 15/073DD JR: JM

2 November 2022

Attention: Andrew Fowler-Tutt

City of Kalamunda PO Box 42 KALAMUNDA WA 6926

Dear Andrew

DA22/02331 - REQUEST FOR INFORMATION - DEVELOPMENT APPLICATION - PROPOSED WAREHOUSE AND INCIDENTAL OFICE - LOT 14, 15, 18 COURTNEY PLACE AND LOT 16 COLDWELL ROAD, WATTLE GROVE

I refer to the Development Application for the subject site submitted to the City of Kalamunda (City) on 23 August 2022 and the email request for information received on 30 September 2020, 14 October and DRP advice of 29 September.

Please refer to Table 1 - 3, including attached appendices, prepared in response to the matters raised by the City.

In addition to the additional comments set out below, the site plan has been updated to confirm how the development proposed to the north (DA22/0309) integrates with the subject site. In particular the egress point from DA22/0309 is shown on the revised site plan to clearly indicate where the egress point is located within the subject site. The revised TIA also considers the sight lines and swept paths generated by the additional access point.

TBB notes the request for additional information requested by Main Roads, primarily relating to the submission of highresolution imagery. The initial reason for the referral to Main Roads is acknowledged, however, it is suggested that as there is no direct impact to the Welshpool Road East / Coldwell Road intersection and traffic volumes are consistent with approved subdivision(s) that there is no impact on the regional road network and determination of the subject application should not be delayed to allow Main Roads comment.

Please find attached to this correspondence the following supporting information:

- Appendix A Site and Soil Evaluation WAPC 161915
- Appendix B Revised Site Plan Courtney Place and Coldwell Road
- Appendix C Signed Letters of Support Southern Neighbours
- Appendix D Revised Landscape Plan Courtney Place and Coldwell Road
- Appendix E Revised Transport Impact Assessment Courtney Place and Coldwell Road
- Appendix F Revised Stormwater Plan Courtney Place and Coldwell Road
- Appendix G Plan of Subdivision WAPC 162674

Toddville Prospecting Pty Ltd (ACN 008 735 153) ATFThe Taylor & Burrell Unit Trust trading as Taylor Burrell Barnett (ABN 74 831 437 925)

Office address: Level 7 160 St Georges Terrace Perth WA 6000



Table 1 – TBB Response – Email 30 September 2022

#	City of Kalamunda Comment	TBB Comment	
1	A site and soil evaluation report is required (SSE) prior to approving the septic system (it is understood the department of health will require this).	The Department of Health has previously reviewed the SSE Report as part of the subdivision application (WAPC 161915) (Appendix A).	
		The ATU will be approved following the DA, consistent with the normal process which has been applied to other sites throughout the Kalamunda Wedge Precinct.	
2	Information required on the sizing of the flat-bed leach drains and detailed plan of position of leach drains.	Please refer to the updated site plan (Appendix B) which confirms the size and setbacks of the flat-bed leech drains.	
3	An acoustic assessment will be require prior to supporting the application/issuing an approval, this needs to address the impact on surrounding rural and residential properties.	The potential impact of noise on the amenity of nearby dwellings was raised as a component of a nearby JDAP application for Total Tyres. It was demonstrated that this was not necessary the properties to the south are zoned Industrial under the MRS and will ultimately be zoned Industrial under the City's Local Planning Scheme. Furthermore, letters of support for the development application were provided by the landowners. We therefore provide revised letters of support from neighbours to the south for the subject Development Application (Appendix C).	
4	Courtney Place and Coldwell Road are being upgrades to support RAV7 movements, with the exception of Welshpool Road East intersection (to be upgraded at a later stage, subject to ongoing planning).	It is advised that Hesperia are currently undertaking the necessary road upgrades to support RAV7 movements as a component of the subdivision of the area (WAPC 161915)	
5	Turning movements need to demonstrate the 19m vehicle exiting onto Coldwell can do so lane correct onto 7m width seal.	A revised Transport Impact Assessment (TIA) has been prepared (Appendix D) which demonstrates that the proposed exit only crossover into Coldwell Road allows exiting vehicles to do so lane correct onto a 7m width seal.	
6	Supportive of reducing parking on-site to accommodate additional landscaping.	Modifications to the site plan which show an increase in landscaping in lieu of on-site parking bays have not been made at this stage.	
		Refer DRP comment 2) regarding improvements to landscape.	
7	Indicates no bicycle parking despite the plans indicating a total of 10 bike bays will be provided.	The revised TIA (Appendix E) now correctly identifies the 10 bike bays which are shown on the site plan.	



Traffic generation appears to be based on industrial estimates and not on the number of employees.

As the intended tenant is not yet confirmed, traffic generation has been estimated using the general industrial rates obtained from ROM, used for the Local Structure Plan and Traffic Signals Approval modelling to ensure consistency with the recent Courtney Place Subdivision TIA (WAPC 161915). Employee estimates are provided for the purposes of estimating minimum parking requirements.

Current peak hour traffic from and to the west is impacted by traffic lights at Roe ramps. Not clear if the Sidra analysis has included this proximity.

No proximity effect has been included in the SIDRA model for the Welshpool Road East / Hale Road / Logistics Boulevard intersection, which is consistent with WAPC 161915. MRWA Operational Modelling Guidelines indicate that a maximum 10% extra bunching (platooning) could be applied as the next signals are 490m away, however 0% bunching presents a more conservative and robust assessment.

Table 2 – TBB Response – Email 14 October 2022

#	City of Kalamunda Comment	TBB Comment		
	Transport Impact Assessment			
1	Please include a section of all the sight line checks (ASD, SSD) for the access points as per AS2890.1 and AS2890.2.	The revised TIA (Appendix E) includes Figures which address all access points.		
2	Section 3.3 and figure 3-5 have identified that the exit point (Access E) needs to be readjusted to accommodate left turn movement of 19m truck exiting onto Coldwell to the north can do so lane correct onto the ~7m width seal, the site plan needs to address this at initial submission stage as it is difficult to track the requirement at Building Stage and can easily be overlooked.	A TIA has been prepared (Appendix E) which demonstrates that the proposed exit only crossover into Coldwell Road allows exiting vehicles to do so lane correct onto a 7m width seal. It is requested that a condition of approval require modification to Access E to facilitate a left turn out movement, as identified in the TIA.		
3	TIA identifies only 56 carpark bays required, with 98 being provided. Can Approval Services consider 60 bays are constructed and remaining area be left as grassed/ vegetated area? This will provide some local amenity while not preventing	The TIA identifies a shortfall of 121 bays based on the requirements for parking set out in the City's LPS. The estimated 56 bays are derived from expected employee numbers and visitors.		
	future carpark area expansion, if needed.	While a tenant has not been confirmed it is anticipated that no more than the 98 bays provided will be required. It is suggested that a revised landscaping plan/car parking management plan be provided prior to		



occupancy to confirm the extent of landscaping and finish of the car park.

TIA 3.5 No cycle parking or end of trip facilities are 4 proposed - appears inconsistent with contemporary sustainable transport principles. Approval Services please check design guidelines.

The revised TIA (Appendix E) now correctly identifies the 10 bike bays which are shown on the site plan.

Site Plan

TIA identifies only 56 carpark bays required, with 98 being provided. Can we propose that say 60 bays are constructed and remaining area be left as grassed/ vegetated area? This will provide some local amenity while not preventing future carpark area expansion, if needed.

Refer to comment 3) applicable to the TIA.

2 Access point A for 19m truck requires wider splay/wing for crossover for left turn movement, an access Restriction needs to be shown on the plan with the following planning condition, please amend as necessary:

> "A restrictive covenant, pursuant to section 129BA of the Transfer of Land Act 1893 (as amended) is to be placed on the certificate(s) of title as show in figure below on lot ? advising of the existence of a restriction on the use of the land."

Please refer to the advice provided by TBB on 28 July 2022 in relation to DA22/0122 and on 31 October 2022 in relation to DA22/0309.

The crossover for the subject application, and the proposed crossover for the site to the immediate north, will actually be located on the same parcel of land as per the attached plan of subdivision for WAPC 162674 (Appendix G), which is anticipated to be approved shortly. The proposed superlot will be retained by the proponent, and the four developments proposed across it will be managed collectively.

Stormwater

As per MKSEA UWMP, the storage requirements is 350m3/hectare, this should be confirmed with the storage volume provided.

Calculations with regard to drainage capacity were provided on the submitted stormwater drawing, confirming the ultimate requirement of 1404.2m3 for a site area of 40,119m².

It is noted that 1443.7m3 of drainage capacity is provided, exceeding the minimum requirement.

Introduce high points at the boundary of the 2 crossovers to confine stormwater within the lot showing some levels.

Each crossover includes a strip drain.



3 The concept plan needs to show the lot connection points as identified in engineering drawing for the subdivision as show below.

Lot connection points are shown on the revised stormwater plan (Appendix F).

Stormwater concept is only showing strip drains. 4 The Plan needs to show how stormwater will be discharged from Building through down pipe and where is the outlet point though soakwells/tanks?

The stormwater concept plan has been enhanced to address this matter (Appendix F). In particular the implementation of a Stormtech SC310 and three rainwater tanks.

5 Drainage basin is to be fully vegetated – we need soil and Geotech to confirm infiltration will be effective. The bioretention area to be 2% of directly connection impervious areas.

The submitted stormwater plan included a Typical Section of Basin. However, due to the revised copy incorporating additional information the typical section has been removed (Appendix F).

The revised landscaping plan submitted details the extent of landscaping, including for areas of drainage (Appendix D).

- Applicant Response - DRP Recommendations

Tabl	Table 3 – Applicant Response – DRP Recommendations – Meeting of 29 September 2022		
	Design Review Panel - Recommendations		
#	City of Kalamunda Design Review Panel Comment	Applicant Response	
1	The integration of the offices with the overall design needs to be addressed with a view to improving the appearance, legibility, aesthetics and scale of the development from the street.	The location, orientation and separation of the individual offices have been considered within the context of the associated Warehouse space(s). The separation of the office uses, in addition to supporting the allocated Warehouse, contribute to signifying the primary façade of the development, enhancing the relationship with the street and promoting overall legibility.	
		As the internal wall may be moved to alter the size of each warehouse, suiting operational needs, each office should be sited at opposite ends of the primary elevation and improving overall building function.	
2	The proponent should explore integrating staff amenities and façade treatments with the design of landscape spaces and the use of landscape generally to improve the overall appearance, amenity and legibility.	The amount and size of mature vegetation has been reviewed in the context of the commentary provided by the Design Review Panel. The revised design has focused on improving the surrounding landscape from inception, to improve overall appearance and amenity.	



This is been achieved by significantly increasing the bag size (doubling) of all street and car parking trees.

In addition to improving amenity and appearance, it is considered that enhancing tree cover will contribute to the passive shading of the area and improve the presentation of the entry to the Roe Highway Logistics Park Precinct.

3 The aesthetic of the overall development is not consistent with the significance of the site - entry point to the estate from the east.

It is considered that, following the confirmation of tenant that branding (signage and colours/materials) will contribute to the visual interest of the built form. Notwithstanding, the combination of soft landscaping along the street frontage and the development of a significant public art contribution will also enhance the visual interest of the site, appropriate for the sites significance within the context of the Roe Highway Logistics Park Precinct.

In addition to the actions being taken on site, it is considered that the proximity of the ongoing business at Lot 17 Coldwell Road will obscure the view of the warehouse from the east. Ultimately this will result in the eastern office being the strongest element of the proposal as viewed from the east, providing articulation and visual interest at the street, and supporting the need for a separation in the location of offices.

Recommendation to consider the locality of the foothills in materials and colour selection.

The final material and colour selection will be dependent on the requirements of the future tenant and their overarching advertising requirements.

It is requested that a condition of approval require the submission of a materials and colours schedule, noting that final materials and colours will be governed by the eventual tenant.

5 Recommend integration of public art into the design of the building/façade.

A condition of approval consistent with the requirements of Local Planning Policy 26 is anticipated, with public art proposed to be located on the building façade to address a number of the comments of the DRP.



Conclusion

We trust that the sum of information provided satisfactory the matters raised by the City and the City's Design Review Panel and all for the City to finalise its Responsible Authority Report as soon as practical.

As noted above it is considered that the items raised predominantly relate to the operation of the subject site and do not result in an impact on the Regional Road network, and as such any further consideration of this information by Main Roads WA is not considered to be warranted.

Should further clarification be required please do not hesitate to contact the undersigned or James McCallum at james@tbbplanning.com.au.

Yours faithfully

JARROD ROSS **PRINCIPAL**

29.11.22

City of Kalamunda

Warehouse and Incidental Office – Lots 14, 15, 18 Courtney Place and Lot 16 Coldwell Road, Wattle Grove (DRP Meeting Number DRP2022/2)

Comments - DAC Member: J.K. Hunziker

Review of information provided by the proponent dated 2 and 25 November 2022 (Received 28.11.2022) against the DAC Recommendations issued under DRP Minutes 29.09.2022.

Material Reviewed (Received email CoK > JHz: 28.11.2022):

- 2209-147-DA-200(D)
- 2209-147-DA-201(D)
- 2209-147-DA-202(D)
- Appendix B Revised Site Plan Courtney Place and Coldwell Road DA22-02331
- Appendix D Revised Landscape Plan Cortney Place and Coldwell Road DA22-02331
- Kenwick_cam1b(a)_20221124a.jpg
- Kenwick_cam1b(b)_20221124a.jpg
- Kenwick_cam1b(c)_20221124a.jpg
- Kenwick_cam2_20221124a.jpg
- Kenwick_cam3_20221124a.jpg
- Email dated 2.11.2022: TBB (James McCallum > Alisha Kozma) inclusive of 'sharepoint' link information.
- Email dated 16.11.2022: TBB (James McCallum > Andrew Fowler-Tutt) inclusive of responses 1 to 5 inclusive

It is noted that the proponent (Taylor Burrell Barnett (TBB)) provided information via email to the City of Kalamunda under email dated 2.11.22 with respect to the DRP Minutes issued 29.09.22. The email provided a 'Sharepoint' link to revised information that addresses the issues raised under the DRP minutes.

The City in email response dated 9.11.22 outlined 5 issues that it considered remained unresolved, these being:

- 1. The scale of the offices in relation to the warehouses
- 2. The lack of building articulation fronting Coldwell Road
- 3. The lack of amenity provided for staff
- 4. The proximity of the offices to the street
- 5. The colour choice of colours and materials

Correspondence from TBB dated 16.11.2022 (email) provided a response to these 5 unresolved issues as per text below. A response to the proponents' individual statements is provided in *italic*:

1. The scale of the offices in relation to the warehouses

The intent of the DRP's recommendation is acknowledged, however the scale of each office has been informed by the anticipated requirements of the future tenants, and designed as functional elements of the built form in lieu of artificially increasing scale for no functional purpose.

The location, orientation and separation of the individual offices have been considered within the context of the associated Warehouse space(s). The separation of the office uses, in addition to supporting the allocated Warehouse, contribute to signifying the primary façade of the development, enhancing the relationship with the street and promoting overall legibility. As the internal wall may be moved to alter the size of each warehouse, as required by operational needs, each office should be sited at opposite ends of the primary elevation and improving overall building function.

Response:

The discussions – and written response under the minutes issued – strongly suggested to the proponent that a revised elevation and thereby distribution of the office component be considered with the suggestion that the office components could be centralized and combined such that staff amenity could be improved via the use of a common outdoor amenity area. It was acknowledged that the warehouse component may not be centrally divided, however further spatial studies should be provided to optimize the combined office component, i.e. there should be adequate flexibility to 'slide' the combined office components along the Coldwell Road frontage. This would require the redistribution of parking such that parking was provided on either side of the office component.

I do not consider that the proponent has reviewed the planning recommendation in light of the DRP discussions and would recommend that the proponent be requested to again review and re-submit.

2. The lack of building articulation fronting Coldwell Road

It is understood from the DRP comments that the concern regarding façade articulation was related to the Courtney Place elevation. Potential improvements could relate to façade treatments that enhance visual interest, particularly from the street, improving the presentation of the Courtney Place elevation which is understood to be the intent of the DRP's comment.

Additionally, the increased size of soft landscaping (trees) along the Courtney Place elevation will serve to soften the appearance of the southern elevation, significantly breaking up and articulating the appearance of a blank elevation from the street as well as providing variation in the presentation of this elevation to the public realm. Updated elevations will be prepared and provided to the City prior to the scheduled JDAP meeting, which combine the revised landscape plan and the proposed scale/number of trees to provide an indication of the ultimate presentation of the Courtney Place elevation.

Response:

Unfortunately, the proponent's assumption that the DRP comments related to the Courtney Place façade is incorrect. The concern – as outlined in the CoK request – was that the articulation fronting Coldwell Road was to be addressed – not Courtney Place.

The proponent has unfortunately not addressed the core issue of Coldwell Road articulation and has responded simply by providing additional street trees. The latter is of course welcome but does not address the primary concern.

The proponent has advised that additional information with respect to the Courtney Place Elevation would be provided. It is assumed that this is covered by 'Kenwick Cam 2 and 3' and also drawing sheet '2209-147-DA-200(D)'. The latter however has not provided any revised façade treatment to the South-West Elevation from what was originally presented.

I do not consider that the proponent has reviewed the planning recommendation in light of the DRP discussions and would recommend that the proponent be requested to again review and re-submit.

3. The lack of amenity provided for staff

The amount and size of mature vegetation has been reviewed in the context of the commentary provided by the Design Review Panel. The revised design has focused on improving the surrounding landscape from inception, to improve overall appearance and amenity, for the wider precinct in addition to staff. This may be seen in the revised Landscaping Plan prepared by Plan E.

This has been achieved by significantly increasing the bag size (doubling) of all street and car parking trees. In addition to improving amenity for staff and streetscape appearance, it is considered that enhancing tree cover will contribute to the passive shading of the area and improve the presentation of the entry to the Roe Highway Logistics Park Precinct. Additionally, the larger tree scale will be provide shading and cooling for staff.

Response:

The issues raised under Items 1 and 2 above relate directly to the issue of 'Staff Amenity'. The increase in street tree number as advised by the proponent is welcome but does NOT directly address the issue of staff amenity. The DRP discussions that were held noted concern that the office components and thereby their staff breakout area – particularly to what is now referenced as 'Office 1' is poor. The provision of an outdoor area fronting a paved carpark – without any tree canopy – is not considered as a good planning outcome.

The 'Office 2' staff amenity is slightly better in so much that it doesn't front a carpark, however the proximity to the street / traffic would not be considered ideal.

I do not consider that the proponent has reviewed the planning recommendation in light of the DRP discussions and would recommend that the proponent be requested to again review and re-submit.

4. The proximity of the offices to the street

The DRP made a number of comments regarding the office's location and scale, which have been responded to above. However, it would appear that this comment relates to the potential to incorporate the offices into the warehouse as the DRP did not suggest the offices should be brought closer to the street. The comment is appreciated, however, for reasons previously articulated the position, scale and design of the offices are proposed to maximise functionality and legibility.

Additionally, recessing the offices into the warehouse would presumably reduce the amount of articulation to the Coldwell Road elevation. For these reasons we do not agree that the office layout should be modified.

Response:

The proponents' comments re integrating the office component into the warehouse and the issues associated with doing that is noted and accepted, however, the proponent has made no attempt at addressing the issues previously raised at the DRP presentation relating to the banal façade treatments to both Coldwell Road and Courtney Place and the lack of any public art integration. The expectation would be that the proponent would provide design responses for further consideration by the DRP. Currently no significant revisions have been undertaken that address any of the 'Design Principals' / Recommendations' from the DRP review.

I do not consider that the proponent has reviewed the planning recommendation in light of the DRP discussions and would recommend that the proponent be requested to again review and re-submit.

5. The colour choice of colours and materials

Revised elevations are currently being prepared which revises the colour palette and material finishes into a more contemporary colour scheme which more strongly relates to context, reflective of the existing industrial aesthetic found with the Roe Highway Logistics Park Precinct. Revised elevations which propose an alternative materials / colours will be provided as soon as they are prepared.

Response:

The revised elevation submitted appear to be the same elevations as previously submitted with the only notable change being the addition of 'Blue Stripes' and the substitution of yellow façade to metallic black façade on the office components.

The issue of the North-West Elevation was considered at the DRP as being a pragmatic and functional response to the obvious need for truck movements and docking requirements and is accepted, however the concern of the DRP was the treatment and articulation of the Courtney Place, Coldwell Road and the Welshpool East facades. The proponent has not addressed these fundamental concerns in the latest submission and the revision of façade colour is superficial at best.

I do not consider that the proponent has reviewed the planning recommendation in light of the DRP discussions and would recommend that the proponent be requested to again review and re-submit.



Enquiries: Steve Fernandez on (08) 9323 4517

Our Ref: 22/7448 (D22#1234046)

Your Ref: DA22/0329

7 December 2022

Chief Executive Officer City of Kalamunda PO Box 42 KALAMUNDA WA 6926

Email: enquiries@kalamunda.wa.gov.au (via email)

Dear Sir/Madam,

INFORMATION REQUEST —- LOT 15 (4) LOT 14 (12) LOT 18 (16) COURTNEY PLACE AND LOT 16 (12) COLDWELL ROAD WATTLE GROVE [WAREHOUSES/OFFICES – DAP/22/02331 – LGA DA22/0329]

In response to your correspondence received on 20 October 2022, Main Roads has reviewed the application and is unable to provide a recommendation at this point in time.

Please provide the following items:

- An amended Transport Impact Assessment (TIA) prepared in accordance with Transport Impact Assessment Guidelines (August 2016) and electronic SIDRA Intersection files (.sip) in Version 9. Please refer to the attached table for details.
- Further to the above it is noted that additional amendments to DA22/0329 are required. This development directly impacts vehicular movements within the subject site and Coldwell Road. Please refer to the attached correspondence (Main Roads reference D22#1211067)

Comments in the attached correspondence should also be reflected in this application, in particular an updated TIA that captures the accumulated impacts of both developments on the crossover to Coldwell Road and the surrounding network.

Please provide the above information at your earliest convenience, noting that Main Roads will require 30 days to review this information once received.

As stated above, Main Roads is not in a position to support the subject proposal until the above information has been received and reviewed.

Please forward all emails, including the requested information to planninginfo@mainroads.wa.gov.au

If you have any further queries, please do not hesitate to contact Steve Fernandez on 9323 4517.



Yours sincerely

S.Fernandez
Steve Fernandez

Planning Assessment Officer/A

Enc:

Table of amendments to the TIA Information Request to the TIS - DA22/0309



List of Amendments Required Traffic Impact Assessment

Stantec - dated 18 August 2022 - Ref: CW1200369 / 304900766 - Version B

Section	Main Roads Comments		
Section 3.2 - Access Arrangements	The number of crossovers proposed on Coldwell Road for light vehicles seems excessive. Provide justification as to why 3 crossovers to Coldwell Road are required		
Section 3.3 - Swept Path Analysis	The design plans currently provide the crossover at Access E identifying an apron potentially encroaching the neighbouring lot, to accommodate the left turn exit movement. This is a matter for the Local Government to resolve.		
Section 3.3 - Swept Path Analysis	Where will service vehicles (e.g. council rubbish collection trucks) be entering/exiting the development - via the heavy vehicle or light vehicle access? If it is the latter, then a swept path analysis should be prepared for this vehicle type for the carpark.		
Section 4.1 - Road	The timing of the Coldwell Road widening and upgrade is to be provided. The completion of this works will directly affect the functionality of the vehicle movements through the industrial precinct and cause congestion at Welshpool Road East.		
Network	The timing of the Welshpool Road East/Coldwell Road upgrade is to be provided. The completion of this works will directly affect the functionality of the vehicle movements through the industrial precinct and in particular impact the safety of Heavy Vehicle movements in and out of the industrial precinct.		



TAN AUS	
	The count survey used by the consultant does not appear accurate when the volumes shown in Figure 6-7 are compared to the May 2021 video survey data available on the Main Roads Traffic Map. This indicates the volumes used in the assessment at both the Welshpool Road East/Logistics Boulevard & Welshpool Road East/Coldwell Road intersections are underestimated by up to 10% less for the peak movements.
Section 6.3 - Key	Given that the difference margin between the Traffic Map May 2021 video survey volumes and the TIA's 2020 volumes and growth rate, revision and justification is required.
Assumptions	It should be possible for the future volumes on Welshpool Road East and Hale Road to be derived based on the AIMSUN modelling referenced in Section 6.4.1, instead of the assumed 2% pa growth.
	• Given how much development has occurred within the Roe Hwy Logistics Park since Dec 2020, it is very likely that heavy vehicle percentages will be markedly higher. The Heavy Vehicle% data in the Traffic Map May 2021 video survey data would be more appropriate.
Section 6.5 - Development Traffic Distribution	6.5.1 - Scenario 2: It appears premature to assume the greater proportions of the development's generated trips would be to/from the south via Logistics Boulevard and Coldwell Road (15% each), where land use is largely rural. It would be more realistic than greater trips would be to/from the north via Hale Road or the east via Welshpool Road East, both of which link to more developed areas from which vehicles would come from. Further justification is to be provided for the trip distribution and trip rates.
Distribution	6.5.2 - Scenario 3: It is not apparent from Figure 6-6 how the three precincts' trips are distributed beyond the three access roads. Information in a similar format to Figure 6-4 should be provided. It is unclear how the future network traffic volumes for Scenario 3 have been derived.



Enquiries: Samantha Lappan on (08) 9323 6161

Our Ref: 22/6576 Your Ref: DA22/0309

5 December 2022

Chief Executive Officer City of Kalamunda PO Box 42 KALAMUNDA WA 6926

Email: enquiries@kalamunda.wa.gov.au (via email)

Dear Sir/Madam,

INFORMATION REQUEST – PROPOSED WAREHOUSE WITH INCIDENTAL OFFICE AT LOT 18 (16), LOT 13 (20), LOT 12 (24) AND LOT 11 (28) COURTNEY PLACE, WATTLE GROVE

In response to your correspondence received on 04 November 2022, Main Roads has reviewed the additional supporting information and is unable to provide a recommendation at this point in time.

Please provide the following items:

 Transport Impact Assessment (TIA) prepared in accordance with Transport Impact Assessment Guidelines (August 2016) and electronic SIDRA Intersection files (.sip) in Version 9.

The development incorporates a heavy vehicle access driveway running from the primary development area through Lot 18 Courtney Place and Lot 16 Coldwell Road. The driveway is intended to be shared with the facility adjacent which is the subject of a separate development application. The traffic assessments for both development applications are inconsistent. Application DA22/0309 is supported by a Transport Impact Statement (TIS), however the facility adjacent is currently being assessed by Main Roads via a separate development application (DA22/0329) with associated Traffic Impact Assessment (TIA).

The City has informed Main Roads that it will be imposing a condition requiring the collective lots be amalgamated. Main Roads is not in a position to assess the traffic impacts of vehicles exiting onto Coldwell Road via the separate TIS and TIA. A revised TIA is required which captures the impact of both development application/proposals and the overall traffic impacts on the road network, including the impact on the intersection of Welshpool Road and Coldwell Road. This necessary considering the developments will operate as one creating one collective traffic impact in the vicinity of a State Road.

Revised Landscaping Plan

The rear driveway access for heavy vehicles raises concerns regarding road safety. As the driveway is within close proximity to Welshpool Road and heavy vehicles are

PO Box 6202, East Perth WA 6892



proposed to be exiting the site eastbound, there is concern that heavy vehicle headlight spill will cause road safety impacts on vehicles heading westbound along Welshpool Road. There are no details provided on the plans as to the height of landscaping proposed between the rear boundary of the subject lots and the access for heavy vehicles. Height of landscaping is off importance as heavy vehicle headlights are positioned higher above the access ground level in comparison to a passenger vehicle. Details are required to ensure that the safety of all road users utilising Welshpool Road is protected.

Please provide the above information at your earliest convenience, noting that Main Roads will require 30 days to review this information once received.

As stated above, Main Roads is not in a position to support the subject proposal until the above information has been received and reviewed.

Please forward all emails, including the requested information to planninginfo@mainroads.wa.gov.au

If you have any queries, please do not hesitate to contact Planning Assessment Officer, Samantha Lappan on (08) 9323 6161.

Yours sincerely

mthornely.

Maryanne Thornely

Road Access and Planning Manager



Response to Feedback – Main Roads WA

Subject JDAP Application - Courtney Place and Coldwell Road, Wattle Grove

Date 8 December 2022

Reference 15/073

To Andrew Fowler-Tutt, City of Kalamunda

Jarrod Ross, Taylor Burrell Barnett From

Hi Andrew,

Thank you for the opportunity to comment on Main Roads feedback.

It is disappointing that their response has been provided only 2 days prior to the due date for the Responsible Authority Report, as this is not a particularly complex development application, and the majority of the comment provided appears to go well beyond their remit with respect to the delegation notice for development applications.

Nevertheless, we have endeavoured to respond and address each of their comments below. We would appreciate this response being included in the RAR material for consideration of Panel members.

Ref	Main Roads WA Comment	Proponent Response	
1	An amended Transport Impact Assessment (TIA) prepared in accordance with Transport Impact Assessment Guidelines (August 2016) and electronic SIDRA Intersection files (.sip) in Version 9. Please refer to the attached table for details.	The TIA submitted is in accordance with the Transport Impact Assessment Guidelines, and SIDRA files have been provided to Main Roads already (twice).	
2	Further to the above it is noted that additional amendments to DA22/0329 are required. This development directly impacts vehicular movements within the subject site and Coldwell Road. Please refer to the attached correspondence (Main Roads reference D22#1211067)	In response to the progression and revisions of the development approval to the north, a revised TIA for this application was submitted to the City of Kalamunda on 2 nd November 2022. The modifications undertaken to the TIA did not impact Main Roads controlled roads, and as such we understand the City did not advise Main Roads of the updated TIA.	
	Comments in the attached correspondence should also be reflected in this application, in particular an updated TIA that captures the accumulated impacts of both developments on the crossover to Coldwell Road and the surrounding network.		
3	Section 3.2 - Access Arrangements: The number of crossovers proposed on Coldwell Road for light vehicles seems excessive. Provide justification as to why 3 crossovers to Coldwell Road are required.	Coldwell Road is a local road and not within the care and control of Main Roads WA, so we are not clear why Main Roads is taking a position on this matter.	



Ref	Main Roads WA Comment	Proponent Response
		Should the City have concern with the number of crossovers, we confirm that the extent of crossovers shown is necessary to provide ease of access and egress to the shared carpark area, noting that the site accommodates two tenancies and may accommodate customer pick-ups. The frontage of the site to Coldwell Road is substantial, and the extent of crossovers proposed is not unreasonable given this frontage.
4	Section 3.3 - Swept Path Analysis: The design plans currently provide the crossover at Access E identifying an apron potentially encroaching the neighbouring lot, to accommodate the left turn exit movement. This is a matter for the Local Government to resolve.	This is not a matter which is relevant to Main Roads WA responsibility. Should the City have concern with the extent of the crossover we will deal with it as a matter of detailed design following determination.
5	Section 3.3 - Swept Path Analysis: Where will service vehicles (e.g. council rubbish collection trucks) be entering/exiting the development - via the heavy vehicle or light vehicle access? If it is the latter, then a swept path analysis should be prepared for this vehicle type for the carpark.	This is not a matter which is relevant to Main Roads WA responsibility. Council rubbish trucks are not used for the collection of waste in industrial areas. Collection will be via independent contractor, and rubbish collection will be designed to be accommodated within the site. There more than ample room to do so.
6	Section 4.1 - Road Network The timing of the Coldwell Road widening and upgrade is to be provided. The completion of this works will directly affect the functionality of the vehicle movements through the industrial precinct and cause congestion at Welshpool Road East.	Coldwell Road is being upgraded as a condition of the existing subdivision approval for the surrounding area. It is anticipated this will be complete prior to occupation of the development, but this is a matter for the City of Kalamunda to be concerned with, and not Main Roads, given Coldwell Road is a local road under the care and control of the City.
J	 The timing of the Welshpool Road East/Coldwell Road upgrade is to be provided. The completion of this works will directly affect the functionality of the vehicle movements through the industrial precinct and in particular impact the safety of Heavy Vehicle movements in and out of the industrial precinct. 	The timing of the Welshpool Road East / Coldwell Road upgrade is not known, and not the responsibility of the proponent. The intersection upgrade has been identified as a component of the draft DCP being progressed by the City of Kalamunda, and a condition to contribute to that DCP will be required as part of the development approval for the subject site.
7	 Section 6.3 - Key Assumptions The count survey used by the consultant does not appear accurate when the volumes shown in Figure 6-7 are compared to the May 2021 video survey data available on the Main Roads Traffic Map. This indicates the volumes used in the assessment at both the Welshpool Road East/Logistics Boulevard & Welshpool Road East/Coldwell Road intersections are underestimated by up to 10% less for the peak movements. 	 Note that the base volume in the TIA is based on December 2020 traffic count. This is only 6 months prior to the MRWA May 2021 count. Both traffic counts are a snapshot of a single day of traffic operation at the intersection and fluctuation between one day to another is expected. As such, the December 2020 count is still fit for purpose. The AIMSUN future scenario models were based on assumptions that are no longer relevant such the previous proposal for the severance of



Ref	Main Roads WA Comment	Proponent Response
	Given that the difference margin between the Traffic Map May 2021 video survey volumes and the TIA's 2020 volumes and growth rate, revision and justification is required. It should be prescible for the future values on Walebread Road Foot and Hale Road to	Hale Road with Tonkin Highway, which has now been revised to include northbound ramps. Therefore, future volumes from the AIMSUN model will not be suitable.
	 It should be possible for the future volumes on Welshpool Road East and Hale Road to be derived based on the AIMSUN modelling referenced in Section 6.4.1, instead of the assumed 2% pa growth. 	 RE Heavy vehicles: 6 months' time period will not result in a markedly high heavy vehicle difference. Based on the MRWA May 2021 count, Logistics Blvd left turn in the AM peak has a 30% heavy vehicle
	 Given how much development has occurred within the Roe Hwy Logistics Park since Dec 2020, it is very likely that heavy vehicle percentages will be markedly higher. The Heavy Vehicle% data in the Traffic Map May 2021 video survey data would be more appropriate. 	component. In the December 2020 count by Cardno, the heavy vehicle proportion is 29%.
8	 Section 6.5 - Development Traffic Distribution 6.5.1 - Scenario 2: It appears premature to assume the greater proportions of the development's generated trips would be to/from the south via Logistics Boulevard and Coldwell Road (15% each), where land use is largely rural. It would be more realistic than greater trips would be to/from the north via Hale Road or the east via Welshpool Road East, both of which link to more developed areas from which vehicles would come from. Further justification is to be provided for the trip distribution and trip rates. 	 RE 6.5.1- Scenario 2: It is important to note that the trip distribution also considers employee trips, i.e., private cars. While the immediate surrounding of the site is rural, there is residential further south where employees may reside. The trip distribution assumptions are also consistent with the already approved Courtney Place Subdivision TIA. RE 6.5.2- Scenario 3: Distribution at Welshpool Road East and Logistics Blvd is similar to the 2020 data, while at Coldwell Road intersection, the precinct's trips are distributed 75% west and 25% east. As per the TIA Section 6.3, future year 2033 background traffic were
	 6.5.2 - Scenario 3: It is not apparent from Figure 6-6 how the three precincts' trips are distributed beyond the three access roads. Information in a similar format to Figure 6-4 should be provided. It is unclear how the future network traffic volumes for Scenario 3 have been derived. 	derived by increasing through movements on Welshpool Road East and Hale Road were by 2% per annum from 2020. Turning movements into MKSEA area were obtained by adding the traffic generated for the full build-out of the rest of MKSEA Precinct 3.

Form 1: Responsible Authority Report (Regulation 12)

JAMES STREET, 25 (LOT 99) PINJARRA – PROPOSED CHILD DAY CARE CENTRE

Form 1 – Responsible Authority Report (Regulation 12)

DAP Name:	Metro Outer Joint Development Assessment	
	Panel Shire of Murray	
Local Government Area:	•	
Applicant:	Planning Solutions (Aust) Pty Ltd on behalf	
	of Brallgra Pty Ltd AFT G. Allan Family Trust	
Ourner		
Owner: Value of Development:	Cobromin Resources Pty Ltd \$2 million	
value of Development.	\$2 million ☐ Mandatory (Regulation 5)	
	, ,	
December 11 In A. dhe 14	☑ Opt In (Regulation 6)	
Responsible Authority:	Shire of Murray	
Authorising Officer:	Director Planning and Sustainability	
LG Reference:	P231/2022	
DAP File No:	DAP/22/02325	
Application Received Date:	7 September 2022	
Report Due Date:	23 December 2022	
Application Statutory Process Timeframe:	90 days with additional 21 days agreed	
	1 Davised Davelenment Plans (surrent)	
Attachment(s):	 Revised Development Plans (current) Development application submission 	
	including:	
	Development Plans (superseded)	
	Noise Impact Assessment	
	<u> </u>	
	Bushfire Emergency Evacuation PlanTransport Impact Statement	
	Transport Impact Statement3. Schedule of Submissions	
	4. Revised Bushfire Management Plan	
	(Version 4 dated 16 November 2022)	
	5. Agency Submissions	
	ATCO Gas	
	Water Corporation	
	Department of Health	
	Department of Planning Lands	
	and Heritage (Aboriginal	
	Heritage);	
	Department of Fire & Emergency	
	Services (Initial)	
	Department of Fire & Emergency	
	Services (Final)	
	6. Independent Design Review	

	Revised street elevations prepared by by MacKay Urban Design		
Is the Responsible Authority Recommendation the same as the Officer Recommendation?	· · · · · · · · · · · · · · · · · · ·		
	□ No	Complete Responsible Authority and Officer Recommendation sections	

Responsible Authority Recommendation

That the Metro Outer Joint Development Assessment Panel resolves to:

Approve DAP Application reference DAP/22/02325 and accompanying plans in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015,* and the provisions the Shire of Murray *Local Planning Scheme No. 4*, subject to the following conditions:

Conditions

- 1. Prior to the submission of an application for a building permit the plans shall be modified to include bicycle bays and end of trip bicycle facilities including showers and lockers within the development site with the facilities implemented in accordance with the Austroads' Guide to Traffic Engineering Practice Part 14: Bicycles and AS 2890.3 Parking Facilities Bicycle Parking to the satisfaction of the local government.
- 2. Prior to the submission of an application for a building permit an updated detailed landscaping plan for the development site and the abutting street verges shall be submitted to and approved by the Local Government. The landscape plan must include:
 - (i) the location, number and type of existing and proposed trees and shrubs, including calculations for the landscaping area;
 - (ii) any lawns to be established;
 - (iii) retention of all trees shown on the site plan for retention;
 - (iv) those areas to be reticulated or irrigated;
 - (v) the outdoor play area;
 - (v) proposed upgrading to landscaping, street trees, paving and reticulation of the street setback area and all verge areas;
 - (vi) paving and footpaths to integrate and link with the existing footpath network.

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

- 3. Prior to the submission of an application for a building permit a Waste Management Plan, shall be prepared for approval by the local government with the approved plan to be implemented to the satisfaction of the local government for the duration of the development.
- 4. Prior to the submission of an application for a building permit the Traffic Impact Statement shall be updated to assess the requirements and recommendations of the Waste Management Plan and identify any matters

that may impact vehicle or pedestrian access within the verge area and/or the development site.

- 5. Detailed civil engineering drawings and specifications are to be submitted for:
 - a. the upgrade of the section of Forrest Street abutting the site including associated drainage;
 - b. the construction of footpaths within the abutting portions of James Street and Forrest Street and footpath links to connect the existing path network on the south western side of James Street;
 - c. on-street parking bays; and
 - d. the site crossover with a satisfactory separation distance to the existing power pole achieved through detailed design, relocation of the pole and/or construction of a island;

shall be lodged for approval by the local government prior to the commencement of construction. Construction works are to be undertaken in accordance with the approved engineering drawings and specifications to the satisfaction of the local government prior to the development first being occupied.

- 6. Prior to the submission of an application for a building permit, the parking bay(s) and points of ingress and egress are to be designed in accordance with AS/NZS 2890.1:2004 Parking facilities Off-street car parking. The car parking bays and accessways are to be constructed, kerbed, drained and line marked and the abutting boundary fence shall be protected from accidental vehicle damage prior to the development first being occupied and thereafter maintained in a sound state of repair to the satisfaction of the Local Government.
- 7. Prior to the submission of an application for a building permit an Environmentally Sustainable Design report to the satisfaction of the local government shall be submitted for approval which identifies measures to be undertaken that maximises environmental, social and economic sustainable outcomes for the development. The recommendations from the approved Environmentally Sustainable Design report are to be implemented to the satisfaction of the local government.
- 8. All storage areas, external fixtures and building plant, including air conditioning units shall be located to minimise any visual and noise impact on surrounding landowners and screened from view from streets, public spaces and adjacent properties to the satisfaction of the local government. Plans outlining this are to be submitted for approval prior to the submission of an application for building permit with the approved plans being implemented to the satisfaction of the local government.
- 9. Prior to the submission of an application for a building permit the recommendations of Part 7 of the Herring Storer Acoustic Environmental Noise Assessment Ref: 30248-1122246-02 shall be incorporated within the building design. The recommendations of Part 7 of the report shall be implemented for the duration of the development to the satisfaction of the local government.
- 10. Prior to the submission of an application for a building permit application the bushfire management plan shall be updated in accordance with the advice

- and recommendations of the Department Fire and Emergency Services to the satisfaction of the local government.
- 11. The requirements outlined for bushfire management under Section 4 Implementation and Enforcement of the approved bushfire management plan are to be implemented and managed on an ongoing basis.
- 12. Prior to the submission of a building permit application details shall be provided outlining an integrated public art component or equivalent cash contribution to the Local Government equivalent to 1% of the development value.
- 13. Prior to the development first being occupied the Bushfire Emergency Evacuation Plan Operational Document V3 dated 24 October 2022 shall be updated in accordance Guidelines Section 5.5.4 'Developing a Bushfire Emergency Evacuation Plan' and implemented to the satisfaction of the local government.
- 14. Prior to the development first being occupied, lighting shall be installed along the driveway and internal pedestrian pathways and in all common service areas. Lighting shall be installed in the car parking area in accordance with relevant Australian Standards and to the satisfaction of the Local Government.
- 15. Prior to the development first being occupied the fencing plan as shown on the approved plans, shall be implement to the satisfaction of the local government and shall include:
 - (i) visually permeable fencing where fencing is identified in street front locations; and
 - (ii) noise attenuation properties where identified in the acoustic assessment.

Fencing is to be constructed and maintained in accordance with the approved plan for the duration of the development.

- 16. Prior to the installation of any signage, a signage strategy shall be submitted and approved by the Local Government for the overall development site in accordance with the Shire of Murray Signs Local Planning Policy. Only signage consistent with the approved signage strategy is to be installed.
- 17. The building shall have a finished floor level of not less than 8.25mAHD.
- 18. Hours of operation for the Child Day Care Centre is limited to between 6.30am to 6.30pm, Monday to Friday, excluding public holidays.
- 19. No outdoor play is to occur between the hours of 6.30am and 7.00am.
- 20. The Child Day Care Centre shall be limited to a maximum 100 children at any one time.
- 21. No parking bays shall be obstructed in any way or used for purposed of storage.
- 22. The proposed bin store is to be designed and constructed in accordance with the Shire of Murray Health Local laws, and be roofed and screened to a height of at least 1.8m by a masonry, brick or other durable material which is visually compatible with the proposed buildings as approved by the Local Government.

- 23. A context and character assessment and suitable design response for the elevation plans consistent with the plans outlined in Attachment 7 or suitable alternative is to be submitted for approval prior to an application for a building permit. The approved revised plans are to be implemented.
- 24. The land shown on the approved plan as required for a truncation at the corner of Forrest Street and James Street is to be ceded free of cost to the Crown and without payment of compensation prior to the development first being occupied.
- 25. The existing trees in the verge of Forest Street are to be retained and protected from damage during the construction program.
- 26. Wheel stops are to be provided to all onsite car parking bays.

Details: outline of development application

Region Scheme	Peel Region Scheme
Region Scheme -	Urban
Zone/Reserve	
Local Planning Scheme	Shire of Murray Local Planning Scheme No.4
Local Planning Scheme -	Residential RAC0
Zone/Reserve	
Structure Plan/Precinct Plan	N/A
Structure Plan/Precinct Plan	N/A
- Land Use Designation	
Use Class and	Child Day Care Centre (SA)
permissibility:	
Lot Size:	2,545m²
Existing Land Use:	Vacant
State Heritage Register	No
Local Heritage	⊠ N/A
	□ Heritage List
	☐ Heritage Area
Design Review	□ N/A
	□ Local Design Review Panel
	□ State Design Review Panel
	Other
Bushfire Prone Area	Yes
Swan River Trust Area	No

Proposal:

The application proposes to develop a Child Day Care Centre (Centre) to accommodate 100 children of various ages and 17 staff members at Lot 99 (25) James Street, Pinjarra.

The Centre comprises a single storey building with a floor area of 805m², 943m² of outdoor play area and 17 car parking bays accessed from James Street.

The Centre is proposed to operate between the hours of 6.30am to 6.30pm Monday to Friday.

The current development plans and application report are included at **Attachments 1** and **2**.

Background:

The subject site is located on the north eastern corner of James Street and Forrest Street, Pinjarra. The site abuts a residential grouped dwelling development to the north west and a single house to the north east. Single houses are situated on the south western side of James Street opposite development site. Two vacant lots and a lot with a large shed owned by the Shire which housed a former State Emergency Services depot is located on the south eastern side of Forrest Street.

The abutting portion of James Street has a 12m wide pavement, comprising a 7m wide two-way carriageway and 2.5m wide islands adjacent to the corner of Forrest Street which protect space for informal on-street parking. The verge adjoining the subject site is 4.5m in width and contains above ground power lines with two power poles and two small newly planted street trees. There is no truncation at the intersection of James and Forrest Streets.

The abutting portion of Forrest Street has an approximate five-metre-wide pavement which is near the end of its life, and a 7.5m wide unkerbed verge containing three street trees. This portion of Forrest Street provides access to the subject site, a single residence, a vacant site, the former SES deport currently used for storage purposes and a Water Corporation sewer pump station site. The Forrest Street pavement terminates and is gated approximately 60m north east of the site. There is no cul-desac bulb to allow suitable vehicle turnaround at the end of Forrest Street.

The subject site is vacant land, covered in grass and contains one medium sized tree. It has a frontage of 37.72m to James Street and 67.47m to Forrest Street. It is relatively flat, with a gradual fall of approximately 0.5m toward James Street.

The subject site is zoned Residential RAC0. The RAC0 zoning is only applicable to the subject site and Lots 1-3, 73 and 64 on the south -eastern side of Forrest Street. The Residential density coding of land to the north east, north-west and south -west is R15. Land on the south-eastern side of Forrest Street, north of James Street is zoned Town Centre and on the south side of James Street is zoned either Residential or Civic and Cultural. This land on the south side of James Street is owned by the Shire and effectively forms part of its Civic precinct.

The Pinjarra Activity Centre Local Planning Policy identifies the subject site within the Mixed-use precinct (recognising its Residential RAC0 zoning. Land on the south eastern side of the Forrest Street is located in the town's Core precinct.



Location Plan

Legislation and Policy:

Legislation

- Peel Region Scheme (PRS)
- Planning and Development (Local Planning Schemes) Regulations 2015 (Regulations).
- Shire of Murray Local Planning Scheme No.4 (LPS4).
- State Planning Policy 4.2 Activity Centres for Perth and Peel
- State Planning Policy 7.0 Design Built Environment
- State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP3.7)

State Government Policies

• WAPC Planning Bulletin 72/2009: Child Care Centre (Planning Bulletin 72/2009)

Local Policies

- Child Care Services Local Planning Policy
- Pinjarra Activity Centre Local Planning Policy
- Pinjarra Town Centre Public Art Local Planning Policy
- Landscape in Urban Areas Local Planning Policy
- Signs Local Planning Policy

Consultation:

Public Consultation

As the proposed use is categorised as an 'SA' use in the Residential zone under LPS4 the application was advertised by way of a notice in the local newspaper and on the Shire's website. A sign was place also placed on the site and letters sent to adjacent landowners.

The submission period was open for 21 days, concluding on 14 December 2022. At the time of submitting the Responsible Authority Report on 12 December 2022, two submissions objecting to the proposal had been received from owners of nearby properties. The main concerns raised in the submissions were:

- Corporate child care centres are inconsistent with the objectives of residential zones and should be established in business areas;
- The proposal will impact on the existing residential character and amenity of the area:
- Council policy needs to be changed to reflect expectation of quiet enjoyment of living in a residential area;
- Impact of noise and traffic around Child Care Centres in residential areas acknowledged by other local governments;
- Paid professional reports not to be trusted;
- Would be happy with a family day care centre.

A summary of the submissions received and the Shire's response to each submission is included as **Attachment 3**.

An addendum will be provided outlining any additional submissions received prior to the closing date for submissions.

Referrals/consultation with Government/Service Agencies

The application was referred to relevant State agencies for comments and recommendations. The following comments were received:

- ATCO Gas No objection.
- Water Corporation Water and sewer services are provided to the site.
- Department of Health Supports the proposal subject to connection to sewer.
 No information has been provided of past land use and therefore potential contamination.
 - Officer comment The site is not listed on the Department of Water and Environment Regulation Contaminated Sites database. The site was previously developed for residential purposes with demolition being undertaken in approximately 2010.
- Department of Planning Lands and Heritage (Aboriginal Heritage) The site does not affect any reported Aboriginal heritage sites or places, therefore, based on the information held by DPLH, no approvals under the Aboriginal Heritage Act 1972 (AHA) are required.
- Department of Fire and Emergency Services The initial Bushfire Management Plan (BMP) was not supported. Following resubmission of the BMP (Version 4 prepared by Eco Logical Australia and dated 16 November 2022 – see Attachment 4) DFES has advised that it adequately identified issues arising

from the bushfire risk assessment and considered how compliance with the bushfire protection criteria can be achieved. However, modifications to the BMP are still necessary to ensure it accurately identifies the bushfire risk and necessary mitigation measures. DFES has indicated however that as these modifications will not affect the development design, they can be undertaken without further referral to DFES.

Officer comment - A condition has been recommended to ensure that the BMP is further updated.

A full copy of the submissions received from State agencies are included at **Attachment 5.**

Design Review Panel Advice

An independent design review was undertaken of the proposal by MacKay Urban Design against the design principles outlined in State Planning Policy 7.0 Design Built Environment. In summary the findings stated:

"The review highlighted that whilst the proposed use in this location, along with the overall height, scale and bulk of the building, are appropriate, the proposed design has several shortcomings that cannot be supported from a design perspective.

The areas which require significant improvement are in respect to:

- the building's relationship to the street;
- the building's response to the prevailing residential character of the locality:
- the lack of consideration to matters of sustainability:
- the levels of amenity that provided to children, staff, visitors and passers-by.

In addition, there are a range of other matters that either need further consideration or further information to be provided, most noticeably around the landscape design and pedestrian access.

Ultimately, the design presents as an 'anywhere' building that wouldn't look out of place in any recent suburban development in Australia. The design does not present as one that feels like it belongs to Pinjarra - a unique, historical and characterful regional town - which it should."

A full copy of the Design review is included at **Attachment 6.**

Revised plans were subsequently submitted which sought to address the points raised in the review, including importantly a change to the internal layout of the building to enable a greater level of activation from the street. The design from the street however has not sufficiently addressed the points raised in the design review, in particular the roof form is very bulky, the response to the corner, canopy proportion and building character (material & colour mix and grain, window proportions etc) are inadequate.

Further amendments to the street elevations were provided by MacKay Urban Design which reflects one way of appropriately addressing the design principles. This can be seen on **Attachment 7**.

Planning Assessment:

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

- Suitability of the site
- Building Design
- Parking
- Waste Management

These matters are outlined and discussed below.

Suitability of the site

The subject site is zoned Residential RAC0 under the Shire's LPS4. The use is categorised as a Child Day Care Centre which is listed as an 'SA' use under the Zoning Table of LPS4. This means a use where there is discretion to approve following advertising.

The Shire's Pinjarra Activity Centre Local Planning Policy identifies the subject lot as being located within the 'Mixed use' precinct and directly adjacent to the 'Core' precinct of Pinjarra.

The objective of the Residential zone is not stated in the Shire's LPS4 however under Schedule 1 (Model Provisions) of the Planning and Development (Local Planning Schemes) Regulations, the objective of the Residential zone are:

- To provide for a range of housing and a choice of residential densities to meet the needs of the community.
- To facilitate and encourage high quality design, built form and streetscapes throughout residential areas.
- To provide for a range of non-residential uses, which are compatible with and complementary to residential development.

A child care centre is considered a compatible non-residential use to housing and such centre are typically located within residential areas.

The proposal will increase local traffic and activity to the area surrounding the subject site. James Street is however classified as an access road and this portion of the road carries in the vicinity of 1,500 vehicles per day. The additional estimated 400 vehicle movements per day would mean that the road is operating well within its capacity. The applicant's Transport Impact Statement has not identified any significant traffic related issues with the proposal. The applicant's Environmental Acoustic Assessment has recommended a range of measures to help mitigate noise impacts of the development and demonstrates that the noise associated with the use of the child care centre will be maintained within the levels set out in the Environmental Protection (Noise) Regulations.

The subject site is located within a mapped bushfire prone area. A Bushfire Management Plan and Emergency Evacuation Plan have been submitted with the application. These plans have been reviewed by the Department of Fire and

Emergency Services and found to suitably address bushfire risk. Whilst some minor changes are recommended at the request of DFES, these do not impact the building design.

Building Design to Reflect the Character of the Area

Revised plans were submitted by the applicant to address the comments raised in the design review. Whilst these plans did address a number of the points raised in the design review, including importantly a change to the internal layout of the building to enable a greater level of activation from the street, the design of the main building elevation and roofline has not been adequately addressed. In particular the roof form is overly bulky, the response to the corner has not been adequately addressed and the building character including the canopy proportion, material and colour mix, grain, window proportions are inadequate.

Key points raised in the design that are still relevant related to the building design include:

- 1c) Insufficient context and character analysis has been undertaken to adequately justify the design approach.
- 1d) The design is an inadequate response to either the existing character of the place or the intended future character that might be anticipated by an RACO coding and does not negotiate between either.
- 1h) The car park is highly visible from the street and will detract from the streetscape. The car park should be screened at the street front with visually permeable fencing and/or landscape.
- 2g) The car park appears to be an unrelenting sheet of bitumen, with no consideration given to the use of textured materials to provide relief.
- 3e) The architectural response to the street corner is poor. The built form should do more to celebrate and interact with the corner and streetscape.
- 5a) No Environmentally Sustainable Design report has been provided.
- 10e) The horizontal window proportions to the street and car park (and visible from the street) are alien and inappropriate to the locality, as are windows that are composed of single large panes of glass.

Further amendments to the street elevations were provided by MacKay Urban Design which reflects one way of appropriately addressing the design principles. This can be seen on **Attachment 7**.

Whilst the site plan layout is generally considered suitable the design of the elevations and roofline can therefore be addressed by conditions of approval that require a context and character assessment and suitable design response by way of revised plans consistent with the plans outlined in Attachment 7 or suitable alternative.

Access and Car Parking

It is proposed to construct 17 on-site car parking bays as part of the development, including one accessible bay and a turnaround bay. An additional five bays are proposed in the abutting portion of the Forest Street road verge.

The Shire's Child Care Services Local Planning Policy outlines car parking should be provided at one bay per staff member (in this case 17 staff) and for visitors at 55 or more children should be provided at nine car parking bays plus one bay per eight children accommodated in excess of 54, ie six bays. This equates to a total of 32 car parking spaces required, or a shortfall of 15 bays.

For comparison the WAPC Planning Bulletin 72 – Child Care Centres suggests as a general rule, the minimum parking requirements for a child care centre, will be one (1) space per five (5) children though the local government may vary this provision. This equates to 20 car parking bays.

Whilst acknowledging the above car parking requirements for Child Day Care Centres under the local planning framework the Traffic Impact Statement submitted with the application estimates that based on an 80% driver mode share, 14 car parking bays are required to accommodate 17 staff, plus eight bays or less to accommodate visitors. That is a total of 22 car parking bays to meet the parking demand at peak periods, with the balance of the parking requirements addressed by pedestrian and bicycle access to the site.

Given the location adjacent to the town core it is considered that there is some capability for a reduced number of parking bays in this case to the 22 recommended by the applicant. The portion of Forrest Street abutting the site however is near the end of its life and currently unsuitable for access to on-street car parking bays and would therefore need to be upgraded. This would also need to involve a path within the verge sufficient to provide safe and convenient pedestrian access to the centre entrance. A condition has been included to achieve this.

Access to the proposed onsite car park is from James Street which in principle is considered suitable. An above ground power pole is however located approximately 0.5m from the main edge of the proposed crossover. The proposed crossover wing is already less that the Shire's specification provides for and is shown at approximately 0.25m from the power pole. A steel pole support exists on the crossover side of the power pole and this has the effect of bringing the edge of the undersize cross over wing almost to power pole. The crossover needs to be located a suitable distance from the power pole to minimise risk of damage. This could be addressed in a variety of ways including relocating the pole, adjustments to the detailed design and/or construction of an island in the street pavement to provide additional separation. A condition is recommended to address this.

Waste Management

The applicant's Traffic Impact Statement advises the rubbish bins are proposed to be picked up on the verge areas. A waste management plan has not been provided, though a waste management plan will determine the amount of waste produced by this development, the number of bins and size of the bin store needed, the number of times in a week that waste vehicles are required to attend the site and the area required on the street verge to accommodate the bins. The traffic management plan will then be able to ascertain whether there is any impact on traffic, parking or roads in relation to bin pickup. A condition has been included to address this.

Conclusion:

The subject development is an appropriate use of subject site. The development will provide an additional choice for the community in the provision of child care services in the area.

Potential noise impacts from use of the centre can be managed with noise attenuation whilst the visual amenity of the area will be enhanced with provision of landscaping.

The street network can accommodate the addition vehicles likely to be generated by the development and traffic access and parking can be adequately managed with the range of recommended conditions.

Building elevations require addition work to ensure that they fit with the distinctive Pinjarra character and conditions related to the a context and character assessment and revised elevations appropriately reflecting the design review, local planning framework and context and character assessment can address this.

<u>Alternatives</u>

The JDAP may wish to refuse this application and provide sufficient reasons for doing so.



PINJARRA CHILDCARE CENTRE

25 JAMES STREET, PINJARRA WA 6208

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F	DA ISSUE	10/11/2
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01	COVER SHEET	(
02	LOCATION PLAN	(
03	SITE PLAN	ŀ
04	FLOOR PLAN	,
05	ROOF PLAN	(
06	ELEVATIONS	(
07	STREET ELEVATIONS	(
80	3D VIEWS	ŀ

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COVER SHEET

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LOCATION PLAN NTS

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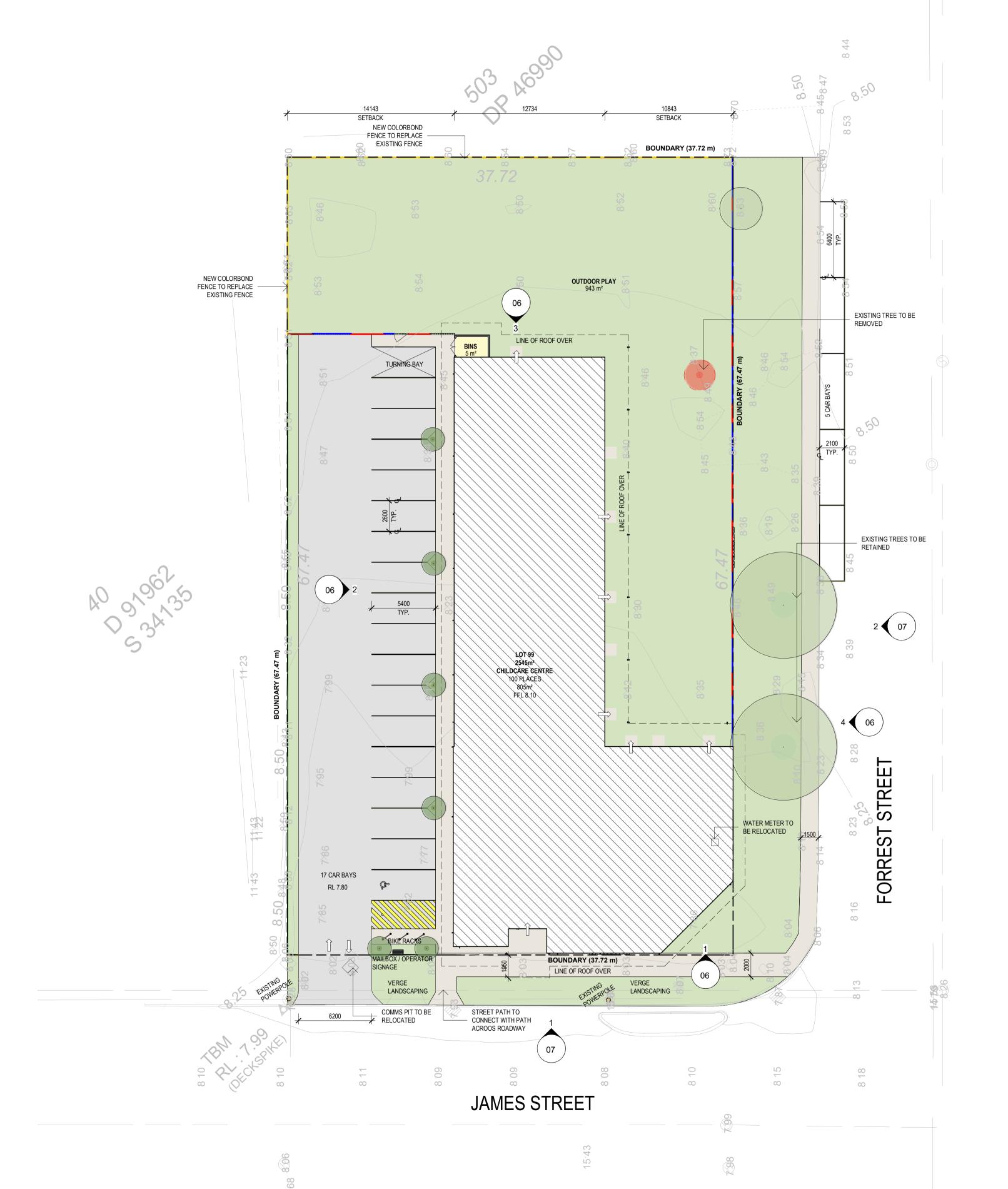
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LOCATION PLAN

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Dwg No. **3541 02** Rev: **G** A1 SHEET



DEVELOPMENT SUMMARY

SITE AREA: 2545 m² 805 m^2 **BUILDING AREA:** LANDSCAPE AREA: 995 m^2

CAR BAYS REQUIRED: 1 PER STAFF MEMBER

9 BAYS UP TO 54 CHILDREN. 9 BAYS PLUS 1 PER 8

CHILDREN IN EXCESS OF 54

REGULAR BAYS DISABLED BAY STREET BAY

TOTAL 22 (32 REQUIRED)

ROOM NAME	PLACE	AGE GROUP	AREA REQUIRED CAL	AREA PROVIDED	STAFF RATIO	STAFF REQUIRED
ACTIVITY 1	8	0 -1	26	29 m²	1 - 4	2
ACTIVITY 2	12	1 - 2	39	43 m²	1 - 4	3
ACTIVITY 3	20	4 - 5	65	66 m²	1 - 10	2
ACTIVITY 4	20	3 - 4	65	66 m²	1 - 10	2
ACTIVITY 5	20	2 - 3	65	67 m²	1 - 5	4
TOTAL	100 PLA	100 PLACES			17 STAFF	

FENCE TYPES

_____ 1.8m HIGH BRICK **FENCE**

MONUMENT

1.8m HIGH VERTICAL METAL SLAT FENCING

2.0m HIGH COLORBOND FENCE:



2.1m HIGH COLORBOND FENCE: MONUMENT

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SITE PLAN

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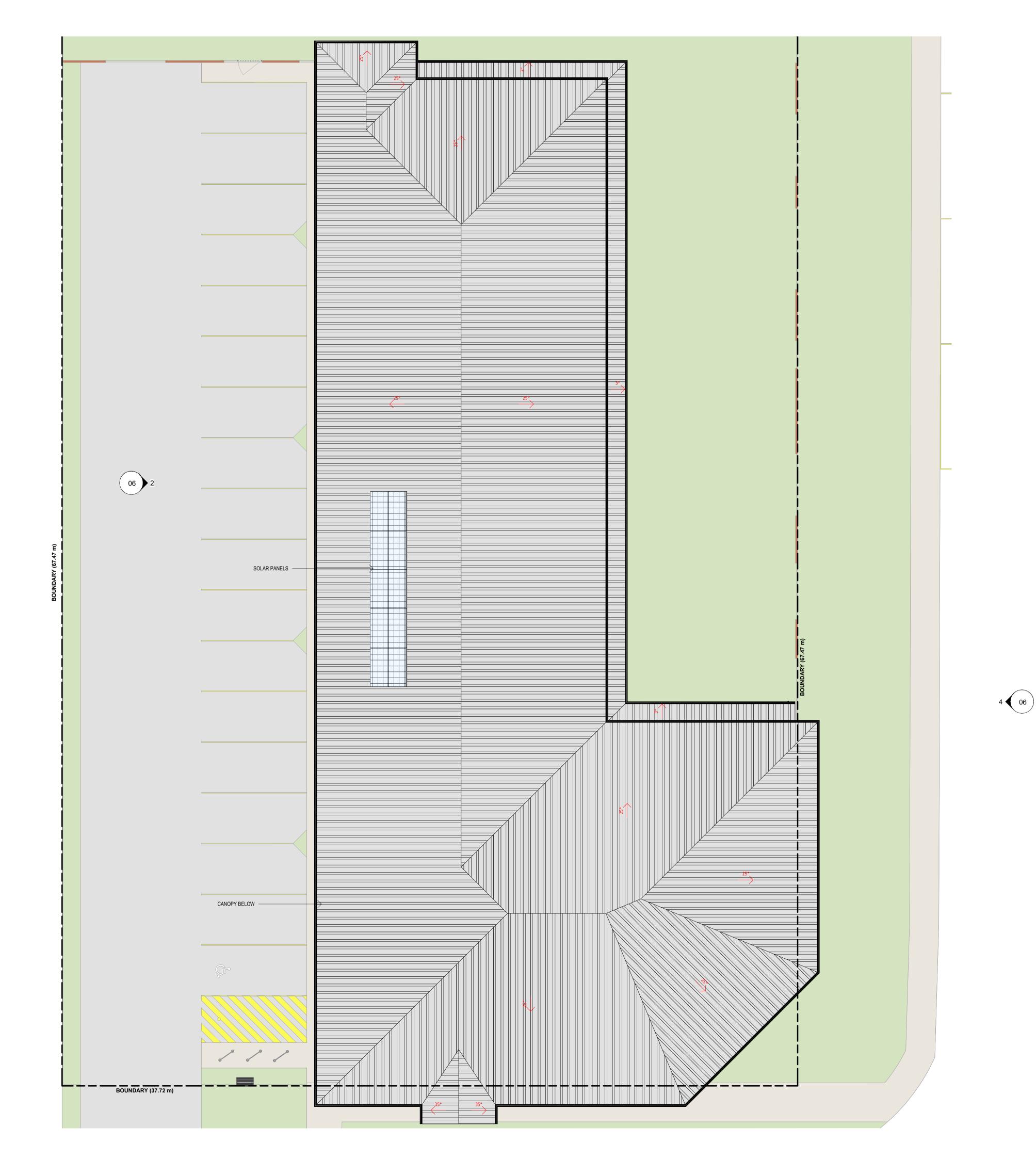
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FLOOR PLAN

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1:100



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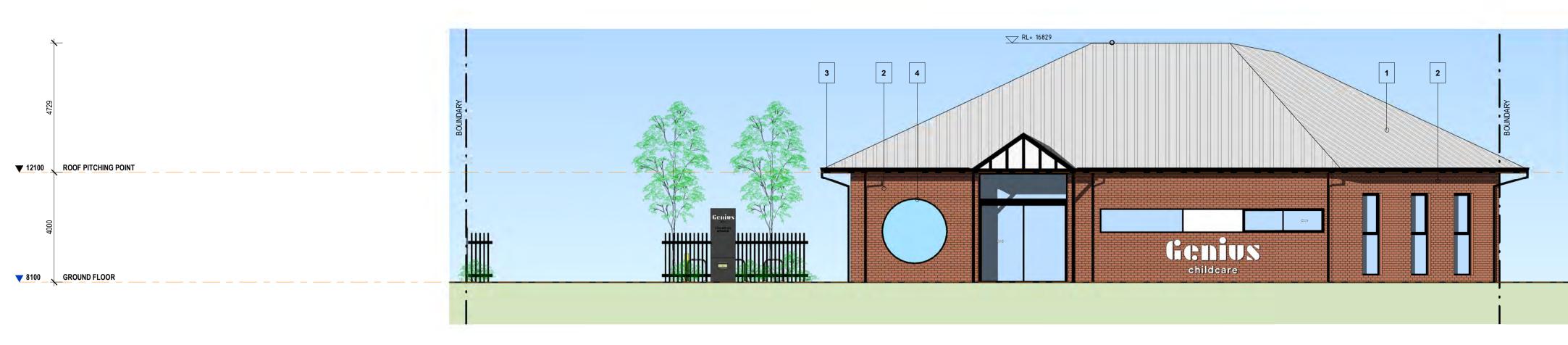
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ROOF PLAN

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Date 06/12/22

Dwg No. **3541 05** Rev: **G** A1 SHEET



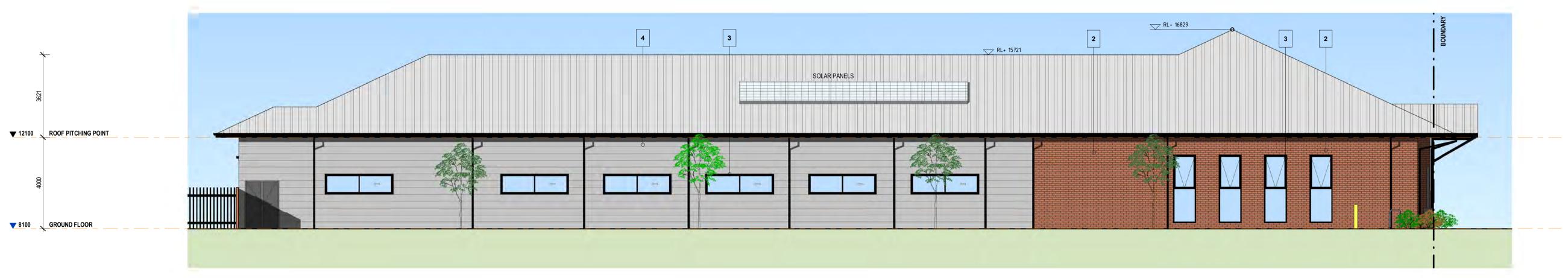
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G	DA ISSUE	06/12/22

1 - SOUTH-WEST ELEVATION

1 : 100



1

1 COLORBOND CUSTOMORB ROOF SHEETING

2

2 RED FACE BRICK

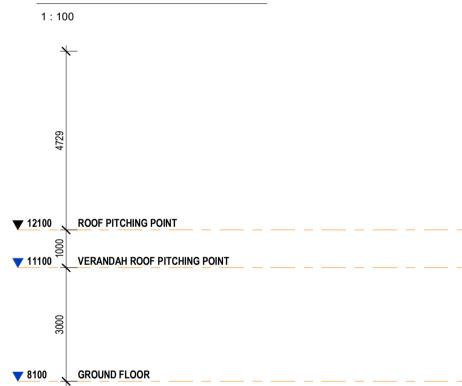


ALUMINUM DOORS / WINDOW FRAMES. FASCIAS/GUTTERS. POWDERCOAT BLACK



4 AXON CLADDING. COLOUR: DULUX DIESKAU

2 - NORTH-WEST ELEVATION





3 - NORTH-EAST ELEVATION

1:100



4 - SOUTH-EAST ELEVATION

1:100

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ELEVATIONS

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Dwg No. **3541 06** Rev: **G** A1 SHEET

- EXISTING POWERLINES ▼ 12100 ROOF PITCHING POINT ▼ 11100 VERANDAH ROOF PITCHING POINT ▼ 8100 GROUND FLOOR OPERATOR SIGNAGE & MAILBOX

FENCE TYPES

1.8m HIGH BRICK FENCE

VERTICAL METAL SLAT FENCING

2.0m HIGH COLORBOND FENCE: MONUMENT

2.1m HIGH COLORBOND FENCE: MONUMENT

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1 - JAMES STREET ELEVATION



2 - FORREST STREET ELEVATION

1:100

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STREET ELEVATIONS

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3D VIEWS

Drawn

Development Application Report

Proposed Child Care Centre

Lot 99 (25) James Street, Pinjarra

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Prepared for Brallgra Pty Ltd ATF G. Allan Family Trust November 2022

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Project Details

Job number	8131	
Client	Brallgra Pty Ltd ATF G.Allan Family Trust	
Prepared by	Planning Solutions	
Consultant Team	Town Planning Architecture and Design Traffic Engineering Surveying Landscape Design Acoustic Design Bushfire	Planning Solutions Brown Falconer Urbii RM Surveys Patrick O'Neil Design Herring Storer Acoustics Eco Logical Australia

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Appendix 2 Site Feature Survey

Appendix 3 Development Plans

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Appendix 5 Environmental Noise Assessment

Appendix 6 Landscaping Plan

Appendix 7 Bushfire Management Plan and Bushfire Emergency Evacuation Plan

PRELIMINARY

1.1 Introduction

Planning Solutions acts on behalf of Brallgra Pty Ltd ATF G. Allan Family Trust, the proponent of the proposed child care centre development at Lot 99 (25) James Steet, Pinjarra (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:

- Background.
- 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 100 children and 17 staff members. Due to the operations of child care centres, staff numbers on site may increase above 17 during shift changeover periods.

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

The child care centre has been specifically designed to respond to the residential 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 bushfire consultants. The development includes environmentally sustainable design features and native landscaping, and encourages alternative modes of transport.

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

1.2 Background

1.2.1 Pre-lodgement consultation with the Shire of Murray

Planning Solutions attended a pre-lodgement meeting with the officers of the Shire of Murray (Shire) on 21 July 2022. The Shire's officers provided a level of 'in principle' support for the development of a child care centre on the subject site from a land use planning perspective. The meeting discussed the applicable planning framework and development parameters, including site layout, setback requirements, parking requirements and the Shire's intended draft planning framework.

A development application was lodged on 7 September 2022, with preliminary assessment comments provided by the Shire on 30 September 2022. Comments related to the built form and site layout not meeting the Shire's expectations for the site's inclusion in the Pinjarra Activity Centre. At the Shire's Ordinary Council meeting on 29 September 2022, Council resolved to modify the boundary of the Pinjarra Activity Centre Local Planning Policy (the Mixed Use Precinct) to include the subject site.

An additional meeting was held with the Shire on 6 October 2022, to discuss a re-design of the proposed child care centre to meet their expectations in consideration of the draft planning framework. The further feedback received from the Shire has been considered in the re-design of the facility and finalisation of the development plans and application package.



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)
99	223050	1991	679	2,545

No limitations, interests, encumbrances or notifications are listed on the Certificate of Title that would affect the merits of this proposal.

Refer to **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 Murray, approximately 83.4 km south of the Perth city centre, approximately 17.3 km southeast of the Mandurah city centre and approximately 90.7 km north of Bunbury city centre. The Pinjarra town centre is located approximately 200m to the south east.

The Murray River is located approximately 125m to the north of the subject site. Pinjarra Road is located approximately 210m to the south west, providing a connection to South Western Highway to the east and Forrest Highway to the west.

2.2.2 Local context, land use and topography

The subject site adjoins Forrest Street at its south eastern boundary (which provides a direct connection to Pinjarra Road) and adjoins James Street at its south western boundary. A residential property with six grouped dwellings adjoin the subject site at its north western boundary and a single dwelling adjoins the subject site at its north eastern boundary.

The subject site is currently vacant and undeveloped, with two existing street trees located in the Forrest Street verge.

The wider locality is generally characterised by low density residential development and community / institutional uses, with various commercial uses located in the Pinjarra town centre to the east. We note the following complementary uses / activities in proximity to the subject site:

- Pinjarra Primary School, located approximately 455m south west of the subject site.
- The Murray Library and Pinjarra Civic Centre, located approximately 150m south of the subject site.
- The Pinjarra Anglican Church, located approximately 195m east of the subject site.

In terms of topography, much of the site is generally flat. The site's levels slope gently from approximately 8.5m AHD (north east), to 7.8m AHD (south west).

Refer to **Appendix 2** for the Site Feature Survey prepared by RM Surveys, to **Figure 1** for an aerial photograph depicting the subject site and surrounds and to **photographs 1-6**.



Figure 1 – aerial photograph of the subject site and immediate surrounds



 $Photograph \ 1: The \ Forrest \ Street \ frontage \ and \ existing \ street \ trees, facing \ south \ towards \ the \ James \ Street \ intersection.$



Photograph 2: The Forrest Street frontage and existing street trees which are proposed to be retained, facing north.



Photograph 3: The James Street frontage, facing west towards the adjoining residential dwellings. The subject site is on the right.



Photograph 4: The James Street frontage facing east towards the Forrest Street intersection.



Photograph 5: The western lot boundary fence and adjoining dwellings, facing north west.



Photograph 6: The northern lot boundary fence, facing east towards Forrest Street and the existing NZ Christmas Tree (to be retained).



3 PROPOSED DEVELOPMENT

3.1 Development Summary

The proposal seeks to develop a single-storey, 100 place child care centre development with associated 17 bay car park, on street parking, landscaping and access on the subject site. The child care centre is well positioned in a predominantly single storey residential locality and within the emerging Pinjarra Activity Centre area. The scale and form of the proposed child care centre respects the context and character of the site. The proposed building seeks to address the two 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 100 children of the following age demographics:

- 20 places for children aged 0-24 months.
- 40 places for children aged 2-3 years.
- 40 places for children aged 3-5 years.

The centre is proposed to operate from 6:30am to 6:30pm, Monday to Friday, and will accommodate up to 17 staff. However, due to the operations of child care centres, staff changeovers occur midway through the day, in which staff numbers may exceed 17.

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

- Transport Impact Statement prepared by Urbii, demonstrating there will be minimal impacts on the surrounding road network arising from the proposal, and that the proposed access and parking arrangements are satisfactory from a traffic engineering perspective (refer to **Appendix 4**).
- Environmental Noise Assessment prepared by Herring Storer Acoustics, demonstrating the proposal will comply with the *Environmental Protection (Noise) Regulations 1997*, subject to mitigation measures (refer to **Appendix 5**).
- A Landscaping plan prepared by Patrick O'Neil Design, depicting the proposed on-site and verge landscaping (refer **Appendix 6**).
- A Bushfire Management Plan and Bushfire Emergency Evacuation Plan prepared by Eco Logical Australia, demonstrating the proposal is suitable from a bushfire risk and safety perspective (refer to Appendix 7).

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, using domestic styled materials and complementary design features. 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, while providing activation to both street frontages.



Specifically, the proposed development comprises:

- A single storey child care centre building with a maximum height of 5.33m (top of roof), with the following setbacks:
 - o Setbacks of 1.8m, 0.2m and 0.4m to the south western (James Street) lot boundary.
 - o A nil setback to the north western boundary (bin store), with the child care centre building set back 14m.
 - o 16.9m setback to the north eastern lot boundary.
 - o A nil setback for a 10.8m long portion of building to the south eastern (Forrest Street) lot boundary, with the remainder of the building set back 10.8m.
- A 14m long, minimum 0.85m deep awning over a portion of the James Street footpath.
- Vertical windows/glazing along the north eastern and south eastern building elevations (to a height of 2.3m) 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 and durable materials, including limewash face brick, aluminium timber look cladding, Axon cladding, Colorbond roof sheeting and powdercoat black satin aluminium highlights (doors, windows frames, fascias, gutters). The materials and finishes are consistent with a residential built form typology, with the built form intended to be an attractive addition to the streetscape.
- The south west and north east elevations comprise a skillion roof feature to accentuate the building entrance point and frontage to James Street, as does the glazing on the south west elevation.
- Pedestrian access via an entrance fover at the south western elevation, accessible from James Street.
- An enclosed outdoor play area in the northern and eastern portions of the site, with a total area of 931m².
- An internal floor layout with the following components:
 - o Entry foyer, library, reception desk, piazza, meeting and staff rooms.
 - Kitchen, laundry and associated children's toilets.
 - o Six group activity rooms, prep room, plan rooms and sleep rooms.
- An external drying area and staff courtyard are provided for natural drying of laundry and for staff respite/amenity. The location of the courtyard provide activation to the street and an opportunity for interaction.
- Boundary fencing 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 the two street frontages and throughout the site, including retaining two mature Peppermint trees along the south eastern boundary, introducing groundcover and verge planting.
- A 17-bay car park situated in the western portion of the subject site, including one ACROD bay. One turning bay is also provided for vehicle manoeuvrability. Five on-street bays are proposed on Forrest Street, for use by the child care centre.
- Fully enclosed bin store located in the north western portion of the site. Waste bins will be wheeled out to the verge for waste collection (during non-peak periods of operation), as required and based on the needs of the child care centre.
- Three bicycle racks (space for six bicycles) to encourage cycling to the facility, by staff and/or visitors.
- Vehicle access via a 6.2m wide full movement crossover to James Street

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 40 AM peak hour trips, and 40 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 40 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 networks and has convenient access to the public transport service in this area.
- The provision of 17 on-site car parking bays, 5 on-street parking bays and off-site bays in proximity to the subject site 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 4 for the TIS prepared by Urbii.

3.4 Acoustic

The subject site is in proximity to residential properties (across James Street to the south) and adjoins residential properties at its western and northern boundaries. Accordingly, an Environmental Noise Assessment has been conducted by Herring Storer Acoustics.

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).
- Construction of 2.1m high solid boundary fencing along the north-eastern boundary and a portion of the north western boundary, and construction of a 2m high fence along the remaining section of the north-western boundary adjoining the proposed car park (as depicted on the development plans in Appendix 3 and Appendix C of the Acoustic Report).
- A passive play area adjoining the north eastern lot boundary.

Refer to the Environmental Noise Assessment Report at **Appendix 5** for a detailed overview of the above mitigation measures. It is noted the above measures can be applied to the development by way of a suitably worded condition of planning approval.



3.5 Landscaping

The proposed development provides approximately 55m² of onsite soft landscaping elements (excluding the 931m² outdoor play area). Verge landscaping comprises further planting and mulch (in accordance with the Shire's Verge Guidelines – Landscape Treatments and Applications). The outdoor play area design and landscaping will be finalised following tenant negotiations and preparation of more detailed designs.

The landscaping incorporates native species which are resilient and waterwise, consistent with typical types of planting found in the Swan Coastal Plain. Dedicated landscaped areas are strategically located along site boundaries and verges to visually soften the development and present attractively to the streetscape. Lower scale general planting will provide visibility to cars entering the carpark and will contribute to the overall aesthetic of the development.

The landscape design seeks to provide a functional purpose through heat reduction, shade and weed suppression. The landscaping intends to soften the building in consideration of the predominant residential landscape, providing a degree of screening from the street and an attractive outlook for surrounding residential properties, while also attracting local birds and insects. As a functional element the design provides reduction of heat, particularly around the car park area.

Refer to Appendix 6 for the Landscaping Plan prepared by Patrick O'Neil Design.

3.6 Bushfire Management

As the subject site is located within a designated 'Bushfire Prone Area' in accordance with the Department of Fire and Emergency Services Map of Bushfire Prone Areas, a Bushfire Attack Level (BAL) assessment was undertaken over the site. The BAL assessment confirms the building is subject to a BAL-12.5 rating. Accordingly, a Bushfire Management Plan (BMP) is required in support of this application.

A BMP and Bushfire Emergency Evacuation Plan (BEEP) have been prepared in support of the proposed development and sets out appropriate mitigation/bushfire protection measures satisfying the relevant requirements of SPP3.7.

Refer to **Appendix 7** for a copy of the BMP and BEEP prepared by Eco Logical Australia.



4 STATUTORY PLANNING FRAMEWORK

4.1 Peel Region Scheme

Under the provisions of the Peel Region Scheme (PRS) 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 Murray Local Planning Scheme No.4

4.2.1 Zoning

The subject site is zoned 'Residential', with an applicable density of R-AC0 under the provisions of the Shires' Local Planning Scheme No.4 (LPS4). Refer to Figure 2, zoning map.

In the absence of LPS4 providing objectives for the Residential zone, the objectives of the Residential zone in the *Planning and Development (Local Planning Schemes) Regulations 2015* are:

- To provide for a range of housing and a choice of residential densities to meet the needs of the community.
- To facilitate and encourage high quality design, built form and streetscapes throughout residential areas.
- To provide for a range of non-residential uses, which are compatible with and complementary to residential development.

The proposal will deliver an essential urban support service, which will provide for the placement of up to 100 children and the creation of 17 local jobs. Additionally, the services offered by the centre will create positive economic and social outcomes for the families and local community.

The proposed child care centre has been purposely designed to integrate with its residential setting and in consideration of the emerging Pinjarra Activity Centre. This is achieved by using domestic style materials, design features and building placement, resulting in a built form outcome which is sympathetic the existing residential buildings surrounding the subject site. The proposed development is single storey in scale and designed in a manner which aligns with the surrounding residential context of the suburb.

The subject site is located on the corner of James Street and Forrest Street and seeks to maintain/enhance a good level of accessibility for vehicles and pedestrians. The proposal is functionally designed to accommodate safe vehicle access and pedestrian access. The entrance of the site is easily identifiable and accessible, with minimal building setbacks to the James Street frontage.

The proposed development is supported by expert technical reporting which demonstrates there are unlikely to be any detrimental impacts on the amenity of the locality. The proposed development adequately addresses traffic and noise impacts as demonstrated in Appendices 5 and 5. The proposed development is therefore entirely compatible with its setting and is likely to result in a positive planning outcome.

The proposed development does not prejudice the objectives of the Residential zone, with child care centres commonly located in residential areas as an urban support service. Expert technical reporting and design will ensure the land use is compatible with existing residential development. The proposed child care centre therefore warrants approval.

4.2.2 Land use permissibility

Pursuant to the provisions of Appendix I – Interpretations of LPS4, the proposed development is classified as a 'Child Day Care Centre', defined as:

"Child Day Care Centre - means any land or buildings used for the daily or occasional care of children in accordance with the Child Care Regulations 1968 (as amended) but does not include a Child Family Care Centre."



In accordance with the Zoning Table of LPS4, a Child Day Care Centre is an 'SA' (discretionary) use in the Residential zone. This means the use is capable of approval, subject to the Shire exercising its discretion and granting approval following a period of public advertising.

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

- 1. The proposed development will establish an important community facility and urban support service for the local community and workforce, providing essential early learning services for up to 100 children and the creation of jobs, enhancing employment opportunities for the surrounding community.
- 2. The proposed development has been designed and configured to respond to the site context and is supported by expert co-consultant reporting which demonstrates it is satisfactory from a traffic and noise impact perspective (refer to **Appendices 4 and 5**).
- 3. The proposed centre responds to the residential character of the locality, proposing a skillion roof (with Colorbond sheeting) and muted tones, textures and domestic styled materials. The built form outcome is one which will enhance the subject site's presentation.
- 4. The development features significant landscaping treatments along site frontages and will result in the establishment of 4 new medium and broad shade trees.

In terms of land use suitability, the proposed child care centre development warrants support and approval.

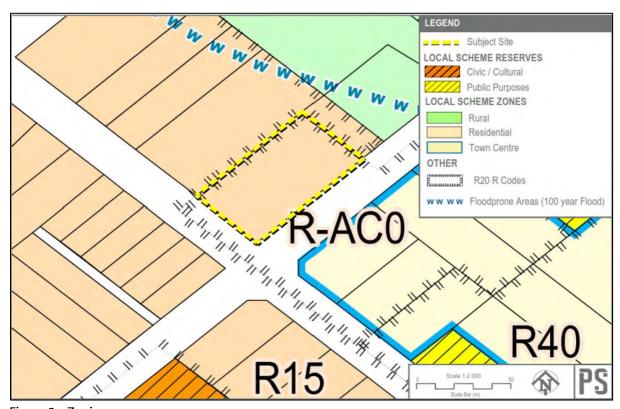


Figure 2 - Zoning map

4.2.3 Development standards and requirements

Part VII of LPS4 stipulates the general development standards and requirements for development within the scheme area. **Table 2** below provides an assessment against the LPS4 requirements relevant to this proposal.

Table 2 - Assessmen	nt against the relev	ant develonment re	equirements of LPS6
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Requirement	Provided	Compliance
	7.1 General	
7.1.1 Except as provided elsewhere in the Scheme, no pethan in accordance with the provision of:	rson shall carry out any development within the Schem	e Area, other
a) the Zoning Table (Table I);	The proposed land use (Child Day Care Centre) is capable of approval in the Residential zone of LSP4.	✓
b) the site requirements and development standards contained in this Part and Table II; and	Table II – Non-Residential Development Standards applies to the use/development of a Day Care Centre and Kindergarten, but not a child care centre.	N/A
c) the appropriate provisions of Part VI relating to the specific development.	N/A – Not applicable	N/A
7.3	General Provisions	
7.3.1 Car Parking		
a) Car parking to be provided pursuant to the provisions of this Scheme shall be laid out and constructed generally in accordance with the layouts of parking bays and manoeuvring aisles shown in Figure I - Parking Layouts, except that where the angles of car parking vary from those shown, the Council may determine the width of the manoeuvring aisle which in no case shall be less than four metres.	The proposed car park is generally designed in accordance with the layouts within LPS4. We understand the car park has been designed in accordance with the relevant Australian Standards and is supported by the TIS.	✓
b) Car parking bays shall be capable of use independently of each other.		
7.3.2 Servicing		
For new uses or development projects which require the despatch or receipt of goods of any kind, loading and unloading space will be required to be provided clear of the street. In general, the Council will seek to ensure that most servicing vehicles are able to enter and leave a street in a forward direction.	Any deliveries are expected by smaller vans or utility vehicles, which can easily access the site. All vehicles can leave the site in forward gear. Waste collection will be from the verge, with a specific location to be confirmed at detailed design.	✓
7.3.3 Landscaping		
a) Landscaped areas to be constructed, planted and maintained pursuant to this Scheme will, in general, be located in such positions on a site or sites so as to enhance the appearance of the affected street or streets and to screen from view of soften the impact of parking areas, open storage areas, drying areas and any other space which, by virtue of its use is likely to detract from the visual amenity of the townscape.	Please refer to the landscape plan in Appendix 6. Areas of soft landscaping are focussed on the frontages to James Street and Forrest Street, with significant verge landscaping proposed. Three existing verge trees are proposed to be retained, which assist in softening the development, as do proposed trees within the car park.	√



b) Landscaping proposals shall be submitted to and approved by the Council and any planting designed to act as a screen shall be comprised of plants growing to a variety of heights to achieve the desired results.	Please refer to the landscape plan prepared by Patrick O'Neil Design (Appendix 6). The proposed landscape scheme provides a significantly enhanced landscape outcome for the subject site, with a variety of plants proposed to achieve different heights.	✓
c) All landscaping proposals approved by Council pursuant to this Scheme shall be carried out at the time of the development or at such other time as may be agreed in writing between the developer and the Council and shall thereafter be permanently maintained to the satisfaction of the Council.	It is expected a condition of development approval will require the approved landscape design and/or a detailed landscape plan to be approved by the Shire prior to building permit/occupancy of the development.	✓
7.3.4 Treatment of Driveways and Parking Areas		
a) All driveways and parking areas shall be constructed to Council's satisfaction and provided with a sealed surface with appropriate measures for drainage and the disposal of surface water. Where appropriate, the Council may require the marking out of parking areas and the provision of suitable 'no parking' signs where thoroughfare must be preserved.	The car park and crossover will be constructed as a sealed surface. Any specific drainage requirements can be addressed at the detailed design stage. However, the facility has been designed in consideration of site levels and expected drainage.	✓
b) All parking areas, turning areas and driveways required by Council pursuant to this Scheme shall be provided at the time of the development and thereafter maintained to the satisfaction of Council.	The car park will be provided at the time of construction, following development approval.	✓
7.6 Building Envelopes		
7.6.1 The objectives of building envelopes are to: a) position and cluster buildings on a lot so as to minimise adverse visual impacts on the landscape character, streetscape and amenity of an area;	The proposed building envelope location seeks to minimise any potential adverse visual impacts on the landscape character, streetscape and amenity of the locality. The building is brought forward to the street frontages, away from adjoining residential properties and is softened by landscaping.	✓
b) ensure buildings and effluent disposal facilities are adequately separated from water courses, wetlands, ground water, flood prone areas, areas of inundation, sources of transport noise and other environmental or site features;	The subject site is not within a water course or flood prone area and has a sewer connection from James Street.	√
c) minimise the need to clear significant vegetation or areas of revegetation for the construction of buildings and effluent disposal facilities;	The subject site is already cleared, with some insignificant regrowth vegetation. The two mature street trees on Forrest Street are proposed to be retained, as is the NZ Christmas Tree to the north east of the site.	√
d) avoid constructing buildings and effluent disposal facilities where ground or soil conditions may be unsuitable; and	The proposed ground and soil considerations are considered suitable, with the subject site not listed on the Department of Water and Environmental Regulation contaminated sites data base.	✓
e) assist in the effective management of bush fire risk.	The proposed building envelope is in an area with a BAL rating of BAL-19 or below, which is suitable. This is confirmed within the Bushfire	✓



	Management Plan prepared by Eco Logical Australia.	
7.6.7 A building envelope must:		
 a) not exceed 2,000m² in area unless: (i) the lot within which the building envelope is situated is zoned Farmlet, in which case the building envelope must not exceed 4,000m² in area; or (ii) the lot within which the building envelope is situated is zoned Special Residential, in which case the building envelope must not exceed 1,000m² in area; 	The building envelope does not exceed 2,000m ² .	✓
b) be regular in shape;	The building envelope for the child care centre is regular in shape, providing for a functional and efficient development.	✓
c) be situated so as to:		
(i) comply with any building setback distance specified by another provision of this scheme.	The proposed setbacks to the side and rear lot boundaries are consistent with the applicable setback requirements of the State Planning Policy 7.3 R-Codes Volume 1.	✓
(ii) minimize the need for clearing of areas with significant native vegetation, revegetation areas, flood prone areas or areas of ground water inundation;	The subject site is vacant and has previously been cleared.	✓
(iii) provide for adequate separation of buildings and effluent disposal facilities from water courses, wetlands, ground water, fire prone areas, sources of transport noise and other environmental or site features;	These factors have all been considered in the design of the facility. There are no sources of transport noise which affect the subject site.	√
(iv) preclude the location of buildings and effluent disposal facilities which would have an adverse impact on the existing or planned landscape character of an area or where ground or soil conditions may be unsuitable; and	The building envelope does not preclude the location of building and effluent disposal. It allows for a connection to the sewer network, with ground and soil conditions considered suitable.	✓
(v) align with any requirements arising from the implementation of State Planning Policy 3.7 – Planning in Bushfire Prone Areas.	Bushfire reporting has been undertaken by Eco Logical in support of the proposed development, with the building envelope logically located out of the north east aspect of the site which has the highest BAL rating.	√

In consideration of **Table 2** above, the proposed development is consistent with the relevant provisions of LPS4, warranting approval.



4.2.4 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 3** below for an assessment of the relevant matters.

Table 3- Matters to be considered

Table 5- 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 LPS4 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 LPS4 or other planning proposals that affect the merits of this proposal from an orderly and proper planning perspective.
(c) any approved State planning policy	The relevant State Planning Policies are addressed in section 4.4 of this report.
(d) any environmental protection policy approved under the Environmental Protection Act 1986 section 31(d) –	Not applicable.
(fa) any local planning strategy for this Scheme endorsed by the Commission	Not applicable.
(g) any local planning policy for the Scheme area;	Relevant local planning policies are considered in section 4.3 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 and the emerging Pinjarra Activity Centre, while making a positive built form contribution to the streetscape. The proposed building incorporates domestic styled materials and design features including a skillion roof, soft tones, textures and materials to maintain a high level of similarity with the established residential character of the area, while providing a commercial built form and positioning to the two street frontages. The proposed building is single storey, consistent with adjoining residential properties. The proposed parking area is sleeved to the west of the
	building and has landscaping (including shade trees) to minimise/soften any perceived visual impacts. Increased landscaping is also provided within the verges 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 existing character of the locality and the desired character of the Pinjarra Activity Centre.
(n) the amenity of the locality including the following –(i) environmental impacts of the development;(ii) the character of the locality;	As detailed above, the proposed development responds to the character of the area through a range of design features.

Matter to be considered	Provided
(iii) social impacts of the development;	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, subject to mitigation measures. 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 17 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: Approximately 500m² of general landscaped areas onsite and within the verge (excluding the outdoor play area). The provision of native groundcover species throughout the development and adjacent verges. 4 new trees provided on site, plus retaining established verge trees along Forrest Street. The proposed landscaping arrangements are 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; (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; 	A Transport Impact Statement (TIS) has been prepared to address traffic/access considerations, confirming the proposed development is entirely suitable in this regard. Refer to Appendix 4 for a copy of the TIS.
 (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 4). ii. The subject site has access to all the required utility services prior to commencement of development. 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 James Street. 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 for up to 17 people, and provide essential early learning services for up to 100 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.



Matter to be considered	Provided
(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 Local Planning Policies

4.3.1 Local Planning Policy Child Care Services

Local Planning Policy - Child Care Services contains provisions relating to the design, location and access of child care centres within the Shire of Murray. Refer to **Table 4** below for an assessment of the proposed development against the relevant provisions of the policy

Table 4 - Assessment against the provisions of the policy

Requirement	Comment	Complies
4. Requirer	ments - Child Day Care Centres	
	appropriately located to ensure they meet the needs of child e on surrounding activities and vice versa. Suitable locations	
i. within or within convenient walking distance (400m / 5 minutes) of commercial, recreation or community nodes and education facilities (e.g. local parks and playground facilities, schools and kindergartens, etc.).	 We note the following facilities / uses / activities in proximity to the subject site: Pinjarra Primary School, located approximately 455m south west of the subject site. The Murray Library and Pinjarra Civic Centre, located approximately 150m south of the subject site. The Pinjarra Anglican Church, located approximately 195m east of the subject site. The Pinjarra town centre and its various commercial uses, located 200m east of the subject site. 	✓
ii. areas where adjoining uses are compatible with a Child Day Care Centre (considering all permissible uses under the zoning of adjoining properties).	The subject site is within the Residential zone, with residential dwellings adjoining the site to the north east and north west. A child care centre is a land use commonly found in residential areas due to their compatibility within a residential setting (subject to design and technical reporting to ensure no amenity impacts). The technical reporting provided as part of this development application confirms the proposal will not result in any adverse amenity impacts on the locality.	√

Requirement	Comment	Complies
	The subject site is therefore entirely appropriate for a child care centre development.	
iii. serviced by public transport.	Commentary on public transport services is provided in the TIS. We note bus stops for Bus Route 600 (Mandurah Station – Pinjarra via Pinjarra Road) are located approximately 300m south of the subject site, on Pinjarra Road (east of Murray Street).	✓
iv. considered suitable from a traffic engineering/safety perspective.	The TIS prepared by Urbii (Appendix 4) confirms the proposed development is suitable from a traffic safety perspective, with no specific concerns identified. We understand the car park is designed in accordance with the relevant Australian Standards, with the traffic generated by the proposed development being insignificant.	4
v. of sufficient size and dimension to accommodate the development without unreasonably affecting the amenity of the area.	The proposed child care centre has been designed in consideration of the lot size and adjoining/nearby residential properties.	✓
Child Day Care Centres are not considered suitable in	n locations where:	
i. soil contamination exceeds the levels regarded by the Department of Water, Environment and Regulation (DWER) and the Department of Health (DOH) as suitable for standard residential land uses with accessible soils as published in guideline Assessment and Management of Contaminated Sites (DWER 2021).	The subject site is not listed on DWER's contaminated sites database.	✓
ii. groundwater is to be abstracted for the irrigation of gardens and play areas within the Child Day Care Centre and groundwater contamination exceeds 10 x Australian Drinking Water Criteria in accordance with the 'Contaminated Sites Ground and Surface Water Chemical Screening Guidelines' (DOH 2014).	The methods of irrigation will be confirmed at detailed design. If groundwater is required for irrigation, its quality can be tested. Otherwise, watering will simply occur from scheme water.	✓
iii. access is from a major road or in close proximity to a major intersection where there may be safety concerns.	Access is not from a major road or in proximity to a major intersection. Vehicle access is from James Street, an 'Access' road in the Main Roads WA road hierarchy. This TIS confirms the proposed access point is suitable.	√
iv. access is from a local access street where there may be unreasonable adverse amenity impacts due to traffic and parking.	Although classified as an 'Access' road in the Main Roads WA road hierarchy, the TIS confirms the proposal is suitable from a traffic engineering and safety perspective, with negligible (if any) adverse impacts due to traffic and parking.	Variation
	Parking provided on site and the five on-street bays are sufficient to cater for the needs of the child care centre, with an opportunity for visitors to park on Forrest Street in the unlikely event the car park is full.	



Requirement	Comment	Complies
v. the current use or any permissible use under the zoning of the adjoining premises produces unacceptable or inappropriate levels of noise, fumes or emissions or poses a potential hazard by reason of activities or materials stored on site.	The Residential zone is unlikely to accommodate land uses that would emit the beforementioned amenity impacts / hazards. The subject site and surrounding land uses are entirely appropriate in consideration of the development of a child care centre.	√
vi. noise produced by roads, railways and aircraft are likely to have an adverse impact on the site.	The subject site is not affected by road, rail or aircraft noise.	✓
vii. the site is in a heavy industry area or within the buffer area of a heavy industry area.	The subject site is not within an industrial area, but rather a residential area, bordering the town centre to the east.	✓
4.2 Site Characteristics		
i. Sites selected for Child Day Care Centres should be of sufficient size and suitable shape to accommodate the development, including all buildings and structures, parking for staff and parents, outdoor play areas and landscaping.	The subject site is of a suitable size to accommodate the development, resulting in an attractive, functional and efficient development that meets the requirements of the national child care regulations.	✓
ii. Sites in residential areas should have a regular shape, with a sufficient lot size to provide the opportunity for design aimed at minimising the impact on surrounding properties. Desirably a minimum lot area of 1,000m² and effective frontage of 20 metres width would be available.	The subject site has an area of 2,545m ² and frontages of 37.7m (James Street) and 67.47m (Forrest Street). The subject site is entirely appropriate for the proposed child care centre development.	✓
4.3 Design		
(a) Building Appearance		
i. The visual appearance of the development should reflect the character of the area, enhance its amenity with a welcoming and inviting appearance from the street.	The design of the proposed child care centre intends to integrate with its residential setting. This is achieved through the use of domestic style materials and design features, resulting in a built form outcome which is sympathetic the existing residential buildings surrounding the subject site. The building location and increased height responds to the emerging character of the Pinjarra Activity Centre by providing visual interest and activation to the street.	•
ii. The development should be designed having regard to any adopted design guidelines, built form/streetscape policies or other development requirements applicable to the site under the planning framework.	Not applicable – no specific design guidelines or built form/streetscape policies apply to the subject site. The requirements of the Pinjarra Activity Centre Local Planning Policy have been considered in the design of the facility.	N/A
iii. Development within or adjacent to residential areas should reflect a residential appearance, character and proportions of the local area. Particular regard should be given to roof form and style, external colours, finishes and materials and	The design of the proposed child care centre intends to integrate with its residential setting. This is achieved by using domestic style materials and design features, resulting in a built form outcome	√

Requirement	Comment	Complies
orientation of building openings, that is sympathetic to surrounding development.	which is sympathetic the existing residential buildings surrounding the subject site.	
iv. In commercial areas, parking should be sleeved behind buildings away from the street and public view. Front doors and entries are to be designed to be legible and accessible from the street.	The subject site is not within a commercial area. However, parking has been softened from view of the street by soft landscaping within the verges and provision of trees.	✓
(b) Street Walls and Fencing		
i. Fencing and walls visible from the street should be suitably designed to provide appropriate access, privacy, safety and security, whilst maintaining adequate levels of passive surveillance (i.e. 'open style' and visually permeable fencing) and have a visually interesting appearance.	The proposed front fencing to Forrest Street comprises a 1.8m high brick fence, with sections of 1.8m high vertical blade slat fencing to allow for passive surveillance, The portions of solid wall allow for child safety and privacy. The use of two contrasting styles/materials provides a visually interesting appearance, and is softened/enhanced by verge landscaping.	
ii. Areas of solid walls or screening visible from the street should be of high-quality materials and be articulated/visually interesting. Soft landscaping should also be used to reduce the visual dominance of solid portions of walls or fences and soften their appearance from the street.	The front fence has been specifically designed to provide suitable visual interest, while ensuring the suitable safety, operation and acoustic requirements for the child care centre premises, and includes various design features to improve its presentation to the street.	√
	The proposed front fence is considered acceptable and warrants approval.	
iii. Front fences to Child Day Care Centres should comply with the residential street fencing requirements of the R-Codes as far as possible and be constructed of appropriate materials that complement the development and respect the amenity of the streetscape and surrounding residential properties.	The boundary fencing is entirely appropriate for the Forrest Street (secondary street) frontage, with the open style and solid style striking the right balance to meet the desired visual amenity and safety outcomes.	~
(c) Landscaping		
i. Where car parking is provided between the building and street alignment(s) a minimum 1.5-metre-wide landscaping strip to be established and thereafter maintained along the street alignment(s).	Not applicable - No car parking is provided between the building and street alignment.	N/A
ii. The development is to be designed to retain and conserve existing mature trees on the site as well as existing Shire verge trees.	No existing mature trees exist on site, due to it being cleared previously. The two mature Peppermint trees within the Forrest Street verge are proposed to be retained.	✓
iii. Car parking areas to be landscaped and provided with shade trees at a minimum rate of 1 tree per 4 car parking bays.	The car parking area is landscaped and proposes shade trees at a rate of 1 tree per 4 bays. Seventeen car parking bays are proposed, requiring 4.25 trees.	~

Requirement	Comment	Complies	
4.4 Carparking and Vehicular Access	4.4 Carparking and Vehicular Access		
(a) On-site Car Parking Parking is to be provided on site at a rate of one parking bay for each staff member, in addition to the required number of bays as outlined in the table below.	 The proposed child care centre provides for more than 55 children, therefore requiring 9 bays plus 1 per 8 children accommodated in excess of 54. The 100 place child care centre requires 17 staff (requiring 17 car parking bays) and 15 bays for visitors. The development proposes 17 on-site car parking bays and 5 on-street bays (an 'on paper' 10 bay shortfall). The proposed variation is considered acceptable for the following reasons: Some staff and visitors are expected to arrive at the facility on foot or via alternate means of transport (bus or bicycle). The pick up and drop off times for a child care centre are generally spread out of a period of an hour or two, meaning it is unlikely that the car park will be full at these 'peak' times. The TIS confirms the total estimated parking demand during the peak hours is 25 bays (including 17 bays for staff and 8 bays for pick-up/drop-off). Vehicles may park within the Forrest Street road reserve. The proposed variation is therefore acceptable and warrants approval. 	Variation	
 (b) Traffic Generation i. Development should only be permitted where it does not negatively impact the function or safety of the adjacent roads or cause undue conflict through the generation of traffic or demand for parking. ii. In assessing an application for a new or expanded Child Day Care Centres, in addition to considering matters such as traffic volumes, road capacity and road safety from a technical engineering perspective, the Shire will have also regard to these matters from a residential amenity perspective. 	 The TIS confirms: 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. The negligible amount of traffic generated is unlikely to have any adverse impacts from a residential amenity perspective. 	✓	
4.5 Noise Considerations			
(a) General Design and Layout Considerations Child Day Care Centres should be appropriately designed and operated to minimise the noise impact it may have on adjacent properties, and also limit the impact noise from external sources may have on the centre. This may be achieved either by physical separation, design and layout of the premises or by implementing noise-mitigation	The majority of the outdoor play area is located away from residential properties, facing Forrest Street. However, portions of the outdoor play area adjoin the residential properties to the north east and the north west. In consideration of this, an Environmental Noise Assessment (acoustic report) has been prepared in	4	



Requirement	Comment	Complies
measures, such as acoustic treatments to buildings or other noise attenuation measures. The following basic principles will apply when considering a proposal:	support of the proposal, identifying aspects of the proposal that require noise mitigation measures.	
i. Where a Child Day Care Centre is located adjacent to a noise-sensitive use, such as residential dwellings, retirement villages and nursing homes, the noise-generating activities of the centre, such as the outdoor play areas, parking areas and any service areas, plant and equipment, are to be located away from the noise-sensitive use.	The majority of the outdoor play area is located away from residential properties, facing Forrest Street. However, portions of the outdoor play area adjoin the residential properties to the north east and the north west.	✓
ii. Where, due to design limitations or safety considerations, noise-generating activities such as outdoor play areas are located close to noise-sensitive uses, appropriate noise mitigation is to be undertaken.	The acoustic report provides the necessary fence heights to ensure compliance with the Environmental (Noise) Regulations 1997. The recommendations of the acoustic report are reflected on the development plans.	√
iii. The design and construction of buildings may include noise-mitigation measures to reduce impact from external sources and to achieve accepted indoor noise limits.	No excessive noise impacts from external sources are expected.	√
(b) Hours of Operation The hours of operation of a Child Day Care Centre should be limited to between the hours of 7am and 7pm Monday to Saturday, and 9am to 5pm on Sunday, unless otherwise agreed to by the Shire.	The child care centre is proposed to operate from 0630hrs to 1830hrs. No outdoor play will be permitted prior to 0700hrs. From a child care operator perspective and from a noise generation/amenity perspective, this is acceptable. The earlier opening time of 0630hrs has been sought in response to the child care market and the need for child care centres to open slightly earlier. This allows some parents/guardians sufficient time ion the morning to drop kids off before their commute to work. This is important for Pinjarra, as some parents are expected to travel further to their places of employment, than those in the Perth metro area. Discretion is sought, and approval of the minor variation is warranted.	Variation

In consideration of **Table 4** above, the proposed child care centre is largely consistent with the provisions of the Shire's Local Planning Policy - Child Care Services, warranting approval.

4.3.2 Local Planning Policy – General Development Provisions – Building Setbacks, Car Parking Standards

The Shire's Local Planning Policy – General Development Provisions – Building Setbacks, Car Parking Standards applies to land within the scheme area and supersede those contained within LPS4, Part 7, Table No.2. During pre-lodgement consultation with the Shire, it was agreed that Local Planning Policy - Child Care Services provides the relevant development requirements relating to a child day care centre, with no assessment against this policy required.



4.3.3 Local Planning Policy - Pinjarra Activity Centre

The Shire's Council resolved to amend Local Planning Policy – Pinjarra Activity Centre on 29 September 2022, to extend its boundary and application to the subject site. Consideration has been given to this policy following further consultation with the Shire.

We note that a child care centre is a use commonly approved in activity centres, and is not expected to prejudice the future development of the Pinjarra town centre in any way. The design sleeves car parking behind the building, and locates the building at the street frontages, consistent with the built form of an activity centre. The design of the proposed development is generally consistent with the provisions of Local Planning Policy – Pinjarra Activity Centre.

4.3.4 Local Planning Policy - Signs

The Shire's Local Planning Policy – Signs applies, seeking to promote a high standard of design and presentation of signs that complement, are well integrated with and do not dominate built form (among other objectives). The proposed development includes identification signage on the truncated elevation (to the courtyard) and the south eastern boundary fence, facing Forrest Street. A blade operator entry sign is provided to the south east of the crossover.

The proposed signs are appropriate on the subject site for the following reasons:

- Signage is consistent with this type and scale of development.
- Signage is essential for a child care centre, to identify the facility to the community.
- The signs are unlikely to result in amenity impacts, as they are not excessively sized and are softened by landscaping. Their colours are neutral, soft tones.

The proposed signs should be considered on their merits and approved as they will not result in any amenity impacts on the locality or streetscape.

4.4 State Planning Policies

4.4.1 State Planning Policy 3.7 - Planning in Bushfire Prone Areas

The subject site is located within a designated 'Bushfire Prone Area' in accordance with the Department of Fire and Emergency Services Map of Bushfire Prone Areas. A Bushfire Attack Level (BAL) assessment was undertaken over the site, indicating that a BAL rating of BAL-19 or less can be achieved for the future building based on the proposed development layout.

The A Bushfire Management Plan (BMP) is required and has been prepared in support of this application. The BMP sets out appropriate mitigation/bushfire protection measures satisfying the relevant requirements of SPP3.7. The BMP confirms the proposed habitable building within the subject site can achieve a BAL-12.5 rating, subject to implementation of an Asset Protection Zone (APZ). The APZ encompasses the portion of outdoor play area at the north eastern aspect of the site, with any future vegetation to be maintained to a low threat state.

Having regard for the classification of a child care centre as a 'vulnerable' land use, a Bushfire Emergency Evacuation Plan (BEEP) has also been prepared in support of the proposal.

Refer to **Appendix 7** for the BAL Assessment, Bushfire Management Plan and Bushfire Emergency Evacuation Plan prepared by Eco Logical Australia.



4.4.2 State Planning Policy No.7 - Design of the Built Environment

State Planning Policy No.7 – Design of the Built Environment (SPP 7) became operational on 24 May 2019. It is the lead policy that elevates the importance of design quality, and sets out the principles, processes and considerations which apply to the design of the built environment in Western Australia, across all levels of planning and development.

SPP7 establishes a set of ten 'Design Principles', providing a consistent framework to guide the design, review and decision-making process for planning proposals. Refer **Table 5** below for an assessment against the ten design principles of SPP7.

Table 5 - 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 Pinjarra. The child care centre adjoins and is located in close proximity to existing residential land uses. Cantwell Park and the Murray River are both located within a 400m walkable catchment of the subject site. The locality is predominantly residential in context and character, with the subject site generally surrounded by single storey residential buildings. 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.
2. Landscape quality	 The proposal will provide approximately 55m² of on-site landscaped areas (excluding the outdoor play area), primarily at its frontages to James Street and Forrest Street. Refer Appendix 6 for a list of the proposed landscaping species. In acknowledgement of the site's large frontages, the design response places a significant emphasis on presentation to the streetscape and provision of attractive, native vegetation. Extensive landscaping and trees are proposed adjacent to the car park, to provide attractive screening to the streetscape and shade for parked cars.
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 James Street and Forrest Street to ensure the development does not adversely impact on the locality. The location and entrance of the building and the relative built form features of the development work to interact with the street. The landscaping is proposed to soften the development when viewed from James Street and Forrest Street, integrating the development into the surrounding residential area. The location 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 all street frontages. Potentially unsightly components such as bin store structure is 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 Child Care Regulations which require a baseline level of functionality and build quality to be achieved for child care facilities.

Design Principle	Proposed Development Response
	 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 child care services. Landscape planting will likely comprise of native species which are climatised to the area and suited to the soil types of Pinjarra.
5. Sustainability	 In terms of social and economic impact, the proposed child care centre is likely to result in significant net benefits as it will: Actively contribute to meeting the demand for child care places in the area; Facilitate the establishment of a new business; and 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 north-facing activity spaces, east windows and large openings providing cross-ventilation, high quality internal fixtures with longevity, etc. The proposed development contains enhanced landscaped areas and tree retention. Suitable planting of low, medium and higher scale plants/trees is
6. Amenity	 proposed, to attract a variety of bird species. Trees will aid providing greater shade to the car park and outdoor play area. 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 to the rear of the
	 car park (which is softened by landscaping). The amenity of the neighbourhood has been considered through a residential building design, a sympathetic scale of built form, various built form treatments and the use of landscaping to soften the interface. The development application is supported by a range of expert consultant reports demonstrating the suitability of traffic / servicing, acoustic management, stormwater management 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 James Street which directs staff and patrons to the car park.
	• The proposal is a clear and attractive feature on the corner of James Street and Forrest Street, in close proximity to Cantwell Park, The Murray River and residential areas.
	 A defined pedestrian path offers pedestrian access from the street to the parking area and the entrance of the building to ensure universal ease of movement and safe navigation throughout the site.
	The curved entrance feature and glazing 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 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.

Design Principle	Proposed Development Response
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 many 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 addresses the site's corner location to James Street and Forrest Street intersection.
	• The colours and finishes provided to building facades offers visual relief and contributes positively to the streetscapes and enhances its presentation to the public realm. Colours are neutral, sympathising with the residential locality. This will create an attractive and inviting place that contributes positively to the local character of the area.
	• The potentially unsightly areas (i.e. bin store, dry court) 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 5, the proposed development is largely consistent with SPP7.0 and warrants approval.

4 CONCLUSION

This application seeks development approval for a child care centre on the subject site. The proposed development is generally consistent with the relevant provisions and requirements of the Shire of Murray Local Planning Scheme No. 4, as well as the applicable planning policies. The proposal 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.
- 6. The proposed is support by expert technical reporting, demonstrating suitably of the development from an acoustic, traffic, bushfire and landscape perspective.

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 and Deposited Plan

WESTERN



AUSTRALIA

REGISTER NUMBER

99/DP223050

DUPLICATE DATE DUPLICATE ISSUED EDITION

3 27/8/2014

VOLUME 1991 FOLIO **679**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.



LAND DESCRIPTION:

LOT 99 ON DEPOSITED PLAN 223050

REGISTERED PROPRIETOR:

(FIRST SCHEDULE)

COBROMIN RESOURCES PTY LTD OF LEVEL 1, 284 OXFORD STREET, LEEDERVILLE

(T M737088) REGISTERED 14/8/2014

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:

(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE.

Warning:

NOTE 2:

A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.

* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.

Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1991-679 (99/DP223050)

PREVIOUS TITLE: 1065-71

PROPERTY STREET ADDRESS: 25 JAMES ST, PINJARRA. LOCAL GOVERNMENT AUTHORITY: SHIRE OF MURRAY

NOTE 1: A000001A LAND PARCEL IDENTIFIER OF PINJARRA TOWN LOT/LOT 99 (OR THE PART THEREOF)

ON SUPERSEDED PAPER CERTIFICATE OF TITLE CHANGED TO LOT 99 ON DEPOSITED PLAN 223050 ON 10-JUL-02 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE.

THE ABOVE NOTE MAY NOT BE SHOWN ON THE SUPERSEDED PAPER CERTIFICATE

OF TITLE OR ON THE CURRENT EDITION OF DUPLICATE CERTIFICATE OF TITLE.

NOTE 3: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING

M774110

Application F471681 Volume 1065 Folio 71 WESTERN



AUSTRALIA

REGISTER BOOK
VOL. FOL.



679 FOL.

Page 1 (of 2 pages) 1991 VOL.

CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

CG Sach
REGISTRAR OF TITLES



Dated 3rd March, 1994

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Pinjarra Town Lot 99, delineated on the map in the Third Schedule hereto.

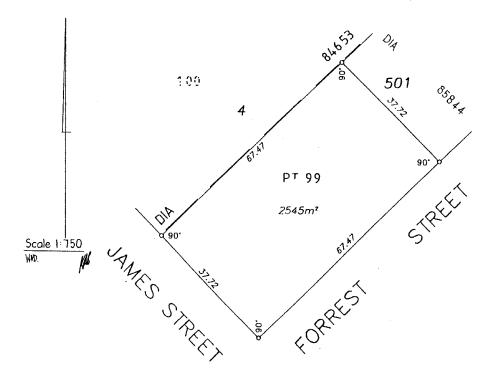
FIRST SCHEDULE (continued overleaf)

Margaret Mary Gibson of 25 James Street, Pinjarra.

SECOND SCHEDULE (continued overleaf)

NIL

THIRD SCHEDULE



NOTE: ENTRIES MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

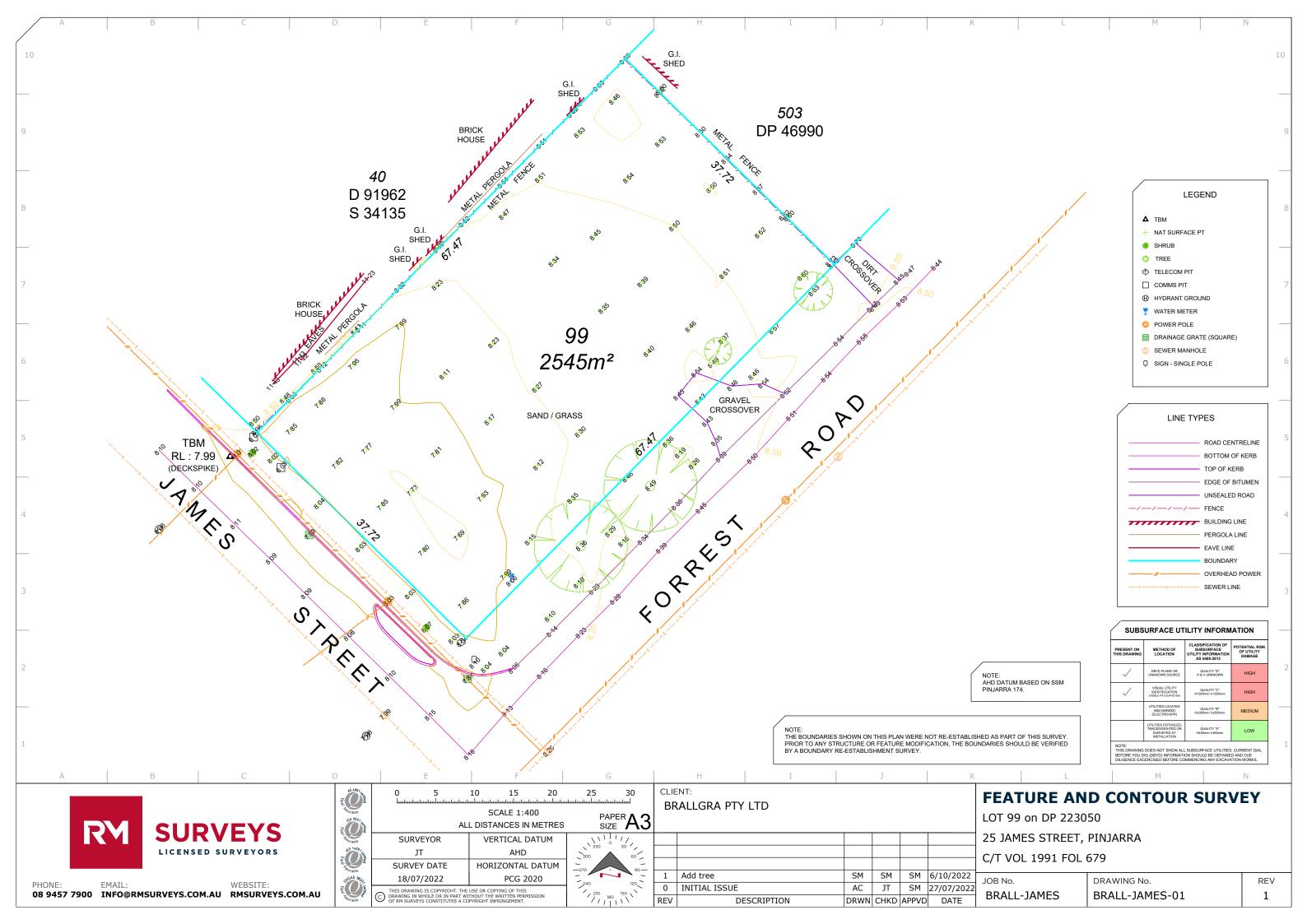
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Appendix 2 Site Feature Survey



Appendix 3 Development Plans



PINJARRA CHILDCARE CENTRE

25 JAMES STREET, PINJARRA WA 6208

DA ISSUE ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	Date
Α	DA REVIEW	04/08/22
В	DA REVIEW	11/08/22
С	DA ISSUE	25/08/22
D	DA REVIEW	31/10/22
Е	DA ISSUE	09/11/22
Е	DV ICCLIE	10/11/09

01	COVER SHEET
02	LOCATION PLAN
03	SITE PLAN
04	FLOOR PLAN
05	ROOF PLAN
06	ELEVATIONS
07	STREET ELEVATIONS

DISCLAIMER: The drawing(s) provided herewith shall be used for the purposes for which it was provided. The electronic data files for all or part of the drawings carry no guarantees whatsoever as to their accuracy, content or lack of same. The use of electronic data files are at the recipient's (or any other third party user's) risk. They cannot be used for any contractual purposes. The user of these files must verify the electronic data files against the hard copy or .pdf file provided.

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PINJARRA CCC

COVER SHEET

Drawn DC

Dwg No. **3541 01** Rev: **F** A1 SHEET



LOCATION PLAN NTS

DA ISSUE ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	D
Α	DA REVIEW	04/08
В	DA REVIEW	11/08
С	DA ISSUE	25/08
D	DA REVIEW	31/1
Е	DA ISSUE	09/1
F	DA ISSUE	10/1

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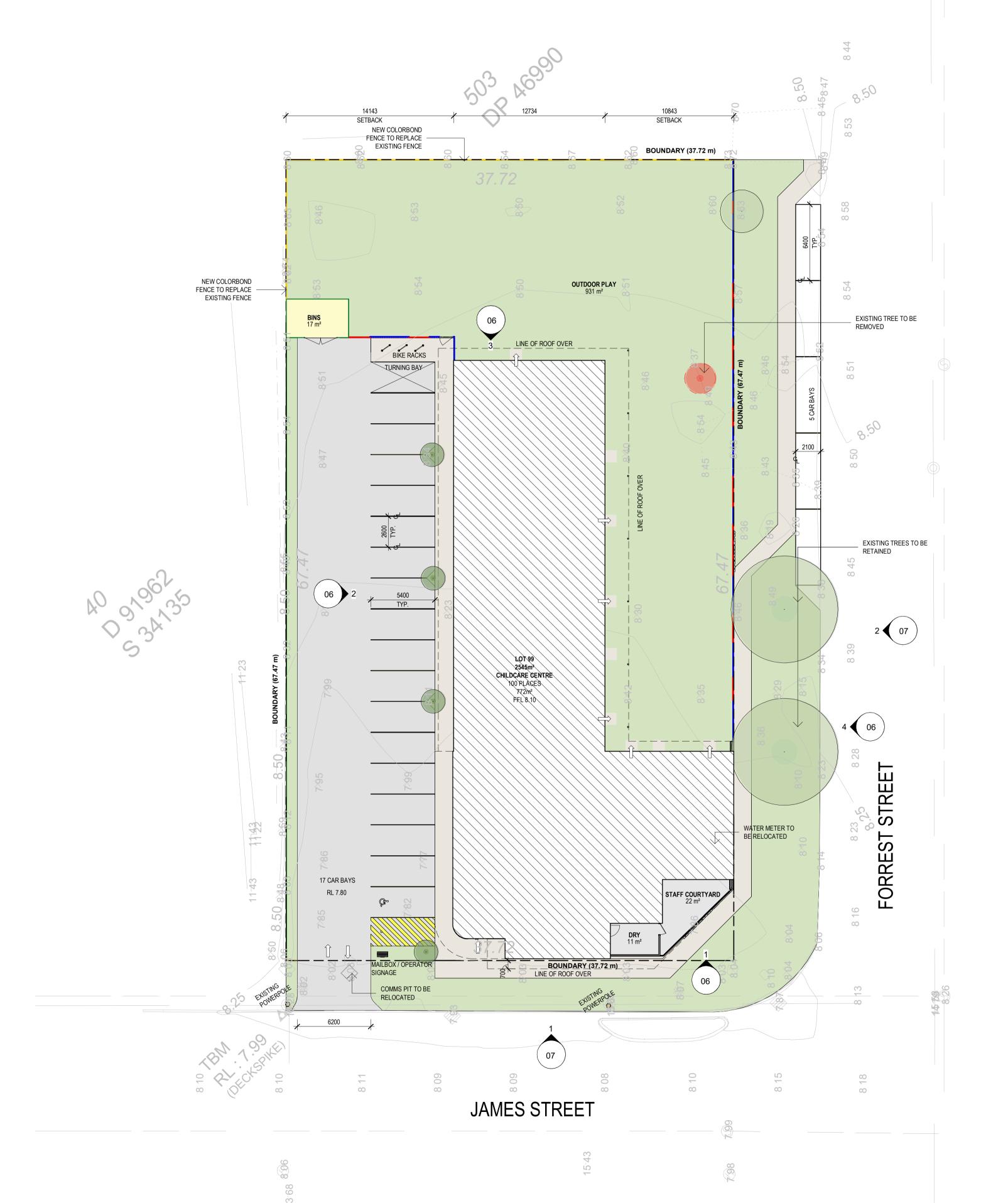
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LOCATION PLAN

Scale 1:30 Drawn DC Checked SJ Date 10/11/22

Dwg No. **3541 02** Rev: **F** A1 SHEET



DEVELOPMENT SUMMARY

SITE AREA:2545 m²BUILDING AREA:772 m²LANDSCAPE AREA:986 m²

CAR BAYS REQUIRED: 1 PER STAFF MEMBER

9 BAYS UP TO 54 CHILDREN. 9 BAYS PLUS 1 PER 8 CHILDREN IN EXCESS OF 54

CHILDREN IN EXCESS

REGULAR BAYS 16
DISABLED BAY 1
STREET BAY 5

TOTAL 22 (32 REQUIRED)

ROOM NAME	PLACE	AGE GROUP	AREA REQUIRED CAL	AREA PROVIDED	STAFF RATIO	STAFF REQUIRED
ACTIVITY 1	8	0 -1	26	29 m²	1 - 4	2
ACTIVITY 2	12	1 - 2	39	44 m²	1 - 4	3
ACTIVITY 3	20	4 - 5	65	66 m²	1 - 10	2
ACTIVITY 4	20	3 - 4	65	66 m²	1 - 10	2
ACTIVITY 5	20	2 - 3	65	67 m²	1 - 5	4
TOTAL	100 PLA	CES				17 STAFF

FENCE TYPES

_____ 1.8m HIGH BRICK FENCE

1.8m HIGH VERTICAL BLADE SLAT FENCING



2.0m HIGH COLORBOND FENCE: MONUMENT



2.1m HIGH COLORBOND FENCE: MONUMENT

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PINJARRA CCC

SITE PLAN

Scale As indicated

Drawn DC Checked SJ

Date 10/11/22

Job No. 2022074

Dwg No. 3541 03 Rev: G A1 SHEET

SITE PLAN

1:200

(06)

DA ISSUE
ISSUED FOR DEVELOPMENT APPROVAL

Date
04/08/22
11/08/22
25/08/22
31/10/22
07/11/22
08/11/22
09/11/22
10/11/22 Amendment DA REVIEW DA REVIEW DA ISSUE DA REVIEW

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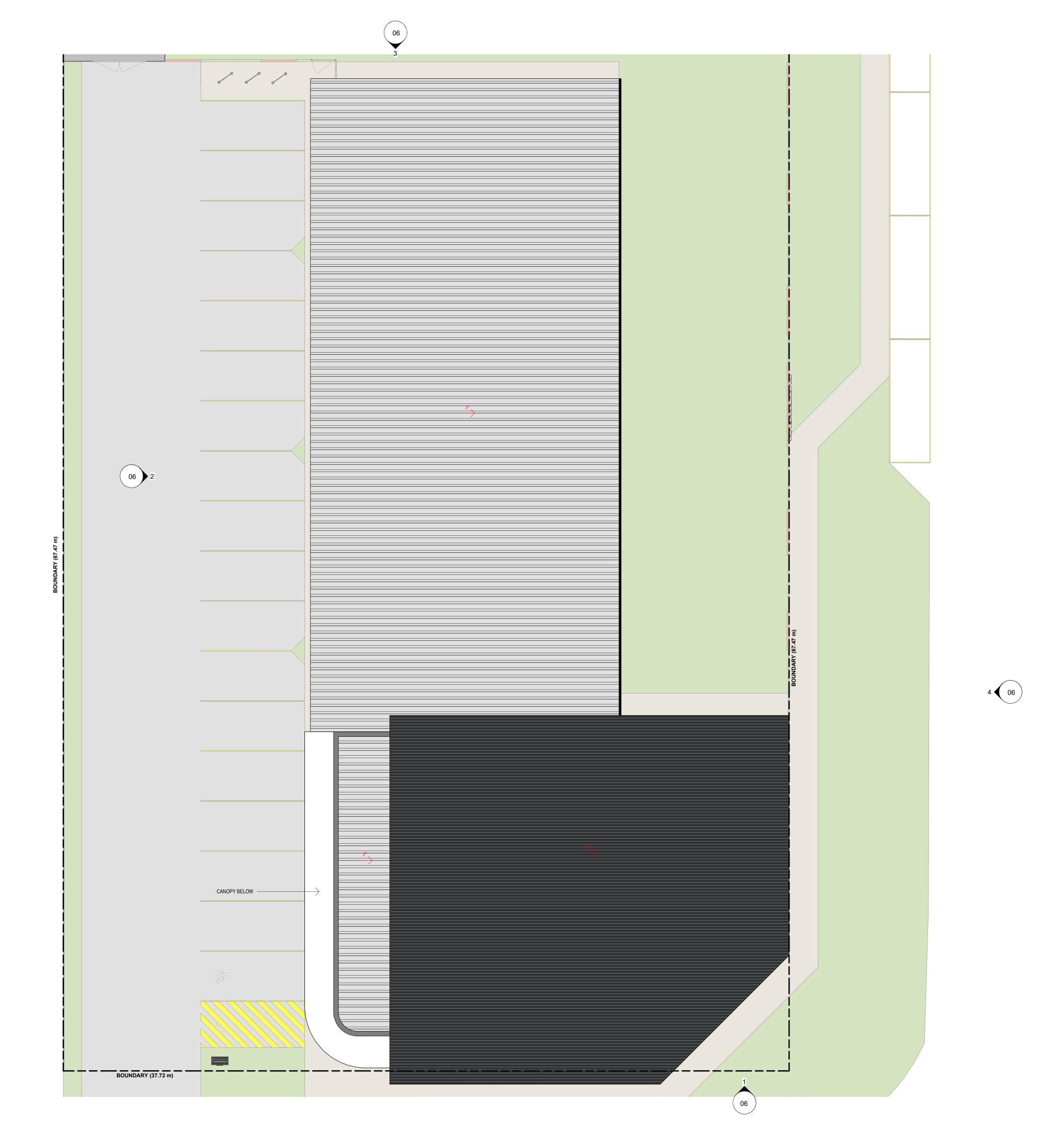
BRALLGRA PTY LTD

PINJARRA CCC

FLOOR PLAN

Scale 1:100 Drawn DC Checked SJ Date 10/11/22

Dwg No. **3541 04** Rev: **H** A1 SHEET



DA ISSUE
ISSUED FOR DEVELOPMENT APPROVAL

 Rev.
 Amendment
 Date

 A
 DA REVIEW
 04/08/22

 B
 DA REVIEW
 11/08/22

 C
 DA ISSUE
 25/08/22

 D
 DA REVIEW
 31/10/22

 E
 DA ISSUE
 09/11/22

 F
 DA ISSUE
 10/11/22

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PINJARRA CCC

ROOF PLAN

Scale 1 : 100

Drawn DC Checked SJ

Date 10/11/22

Job No. 2022074

Dwg No. **3541 05** Rev: **F** A1 SHEET

RL+ 13438 ▼ 12100 HIGH ROOF PITCHING POINT ▼ 11100 ← ROOF PITCHING POINT ▼ 8100 GROUND FLOOR

DA ISSUE

ISSUED FOR DEVELOPMENT APPROVAL

Rev.	Amendment	Date
Α	DA REVIEW	04/08/22
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Ε	DA ISSUE	09/11/22
F	DA ISSUE	10/11/22



1 COLORBOND ROOF SHEETING



2 LIMEWASH FACE BRICK





ALUMINUM DOORS / WINDOW FRAMES. FASCIAS/GUTTERS. POWDERCOAT BLACK SATIN



AXON CLADDING..
COLOUR: DULUX
DIESKAU TYPICALLY
WITH COLOURED



COLORBOND CLADDING & ROOF SHEETING. COLOUR: MONUMENT



7 PERFORATED SCREEN



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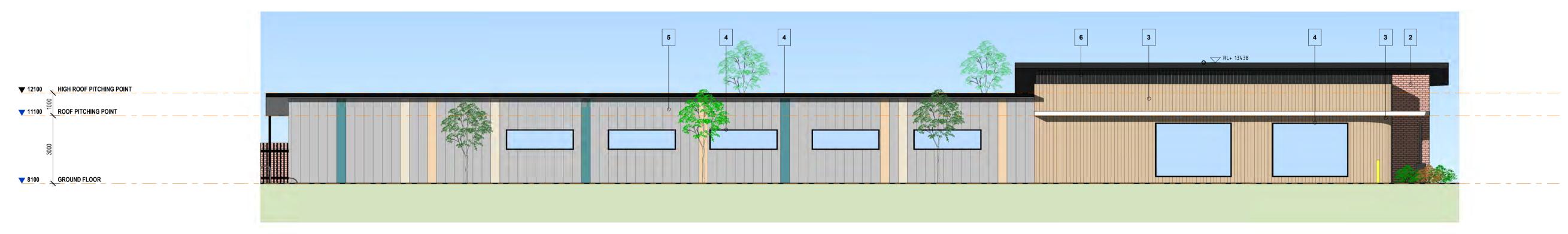
PINJARRA CCC

ELEVATIONS

Scale As indicated Drawn DC Checked SJ Date 10/11/22

Job No. 2022074 Dwg No. **3541 06** Rev: **F** A1 SHEET

1 - SOUTH-WEST ELEVATION



2 - NORTH-WEST ELEVATION



3 - NORTH-EAST ELEVATION

1 : 100



4 - SOUTH-EAST ELEVATION

1:100

- EXISTING POWERLINES ▼ 12100 HIGH ROOF PITCHING POINT ▼ 11100 ROOF PITCHING POINT ▼ 8100 GROUND FLOOR OPERATOR SIGNAGE & MAILBOX OPERATOR SIGNAGE

FENCE TYPES

DA ISSUE ISSUED FOR DEVELOPMENT APPROVAL

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Date 04/08/22 11/08/22 25/08/22 31/10/22 09/11/22 10/11/22

VERTICAL BLADE SLAT FENCING

2.0m HIGH COLORBOND FENCE: MONUMENT

2.1m HIGH COLORBOND FENCE: MONUMENT

1 - JAMES STREET ELEVATION



2 - FORREST STREET ELEVATION

1:100

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STREET ELEVATIONS

Scale As indicated Drawn DC Checked SJ 10/11/22

Date Job No. 2022074

Dwg No. **3541 07** Rev: **F** A1 SHEET





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Rev.	Amendment	
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3D VIEWS

Drawn DC

Appendix 4 Transport Impact Statement



Lot 99 (25) James Street, Pinjarra Proposed Child Care Centre

TRANSPORT IMPACT STATEMENT









Prepared for:

Brallgra Pty Ltd

November 2022

Lot 99 (25) James Street, Pinjarra

Prepared for: Brallgra Pty Ltd
Prepared by: Paul Ghantous

Date: 10 November 2022

Project number: U22.068

Version control

Version No.	Date	Prepared by	Revision description	Issued to
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U22.068.r01a	01/09/22	Paul Ghantous	FINAL	Planning Solutions
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U22.068.r01c	10/11/22	Paul Ghantous	REVISED FINAL	Planning Solutions



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1 Introduction

This Transport Impact Statement has been prepared by Urbii on behalf of Brallgra Pty Ltd with regards to the proposed child care centre, located at Lot 99 (25) James Street, Pinjarra.

The subject site is situated on the northern corner of James Street and Forrest Street, as shown in Figure 1. The site is presently vacant and is surrounded by mostly residential land uses.

It is proposed to develop the site into a child care centre catering for up to 100 children and 17 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 transport.

This TIS has been revised to reflect changes made to the proposed development plans.



Figure 1: Subject site location







2 Proposed development

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

- Activity rooms allocated to different age groups;
- Outdoor play area;
- Ancillary rooms including kitchen, staff, preparation and bath rooms;
- 17 onsite car parking bays, including one ACROD bay;
- 5 on-street parking bays, located on the northern side of Forrest Street;
- Bicycle parking for six bicycles; and
- Bin store.

Vehicle access to the site is proposed via one crossover on James Street. 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

The subject site is presently vacant with no vehicle access or parking.

3.2 Proposed vehicle access

Vehicle access for the child care centre is proposed to be accommodated via one crossover on James Street (Figure 2).

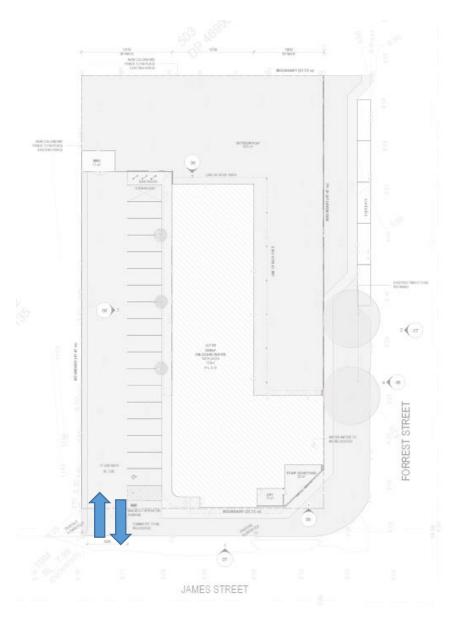


Figure 2: Proposed development vehicle access







3.3 Car parking layout

Dimensions of car parking aisles and bays are compliant with AS2890.1. Visitor bays are 2.6m wide by 5.4m long and an aisle width of 6.2m has been provided. The ACROD bay is designed to AS2890.6 with a shared space.

3.4 Parking supply and allocation

It is proposed to provide a total of 22 car parking bays for the child care centre. This includes one ACROD bay. 17 car bays are provided within the site and 5 car bays are provided on Forrest Street adjacent to the site.

3.5 Parking demand for staff

It is understood that the proposed development site is located within the 'Mixed-Use Precinct' as defined in the Shire of Murray's *Local Planning Policy Pinjarra Activity Centre*. Some principles relating to car parking supply include:

- The amount of parking for commercial uses shall be commensurate with an urban centre rather than a suburban shopping centre.
- Visitor parking shall be located where it is convenient and available for reciprocal use.
- Reciprocal parking arrangements may be supported where justified to the satisfaction of the decision maker.
- Development provides transition between the town centre and broader residential precincts, encourages walkability and supports public transport.

The Shire's LPP seeks to promote alternative transport modes. The town centre is within the 5 minute walking catchment of the site (Figure 10). There is also significant catchment of staff and visitors within 8km cycling distance of the site (Figure 11).

In consideration of the above factors, an 80% driver mode share for staff is considered reasonable and appropriate. This results in an anticipated peak parking demand of 14 bays for 17 staff.

3.6 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 40 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 3 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.

3.7 Total parking demand

The total estimated parking demand during the peak hours is 22 bays (including 14 bays for staff and 8 bays for pick-up/drop-off). The proposed car parking provision is sufficient and meets the needs of the development.

Traffic volume	40 (vph)		0.01111 (vps)
Time period	7 (min)		420 (sec)
Mean number of vehicles	4.66667		
Probability distribution table	95th percentile:	8	vehicles

(x)	p(x)	P(x)
1	0.04388	0.05329
2	0.10239	0.15568
3	0.15928	0.31496
4	0.18583	0.50079
5	0.17344	0.67423
6	0.1349	0.80912
7	0.08993	0.89905
8	0.05246	0.95151
9	0.0272	0.97871
10	0.01269	0.99141
11	0.00539	0.99679
12	0.00209	0.99889
13	0.00075	0.99964
14	0.00025	0.99989
15	7.8E-05	0.99997
16	2.3E-05	0.99999
17	6.2E-06	1
18	1.6E-06	1
19	4E-07	1
20	9.3E-08	1

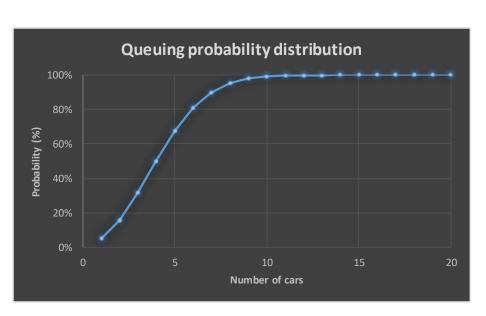


Figure 3: Probability analysis for children's drop-off/pick-up

3.8 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 4).









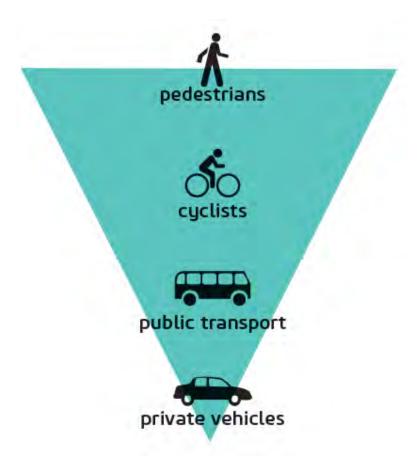


Figure 4: Sustainable transport hierarchy¹

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.

U22.068.r01c

¹ Source: https://www.nationalcapital.gov.au/images/NCA/planning and urban design/west-basinguidelines/Road-user-hierarchy.png

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 short time during 'off-peak' periods.

Waste will be collected via kerbside verge service.









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 1.

Table 1: 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 trips 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 trips 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 2. The proposed development is estimated to generate 400 vehicles per day (vpd), with 80 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 2: Development traffic generation – Weekday AM and PM peak hour

	Land use	Quantity	Daily Trips	AM Trips	PM Trips	AM Peak Trips		PM Peak Trips	
						IN	OUT	IN	OUT
	Child Care	100	400	80	80	40	40	40	40









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 5).

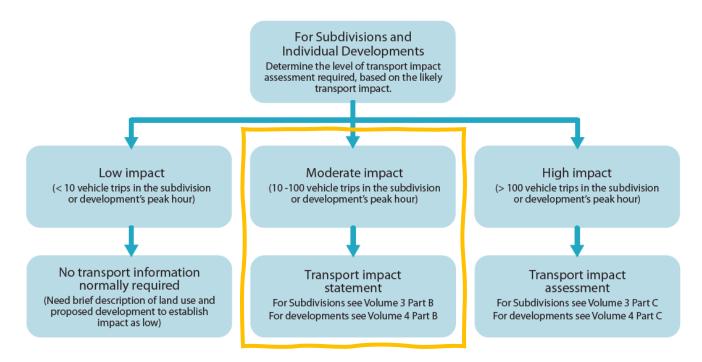


Figure 5: Level of traffic impact for subdivisions and individual developments

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.

James Street near the subject site is an approximately 12m wide, two-lane undivided road. A footpath is provided on the western side of the road.

James Street is classified as an *Access* road in the Main Roads WA road hierarchy (Figure 6) and operates under a built-up area speed limit of 50km/h (Figure 7).

Access roads are the responsibility of Local Government and are typically for the provision of vehicle access to abutting properties (Figure 8).

Traffic count data obtained from the Shire of Murray indicates that James Street carried average weekday traffic flows of under 1,000 vehicles per day (vpd) in 2022, with a recorded 85th percentile speed of 54km/h.











Figure 6: Main Roads WA road hierarchy plan

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



Figure 7: 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						
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
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.
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						
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.
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 8: 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.

The subject site has access to the following bus services within walking distance:

Bus Route 600: Mandurah Stn – Pinjarra via Pinjarra Rd.

The existing public transport network plan is shown in Figure 9. Bus services provide connectivity to the rail network. The nearest bus stops are within close walking distance on Pinjarra Road.

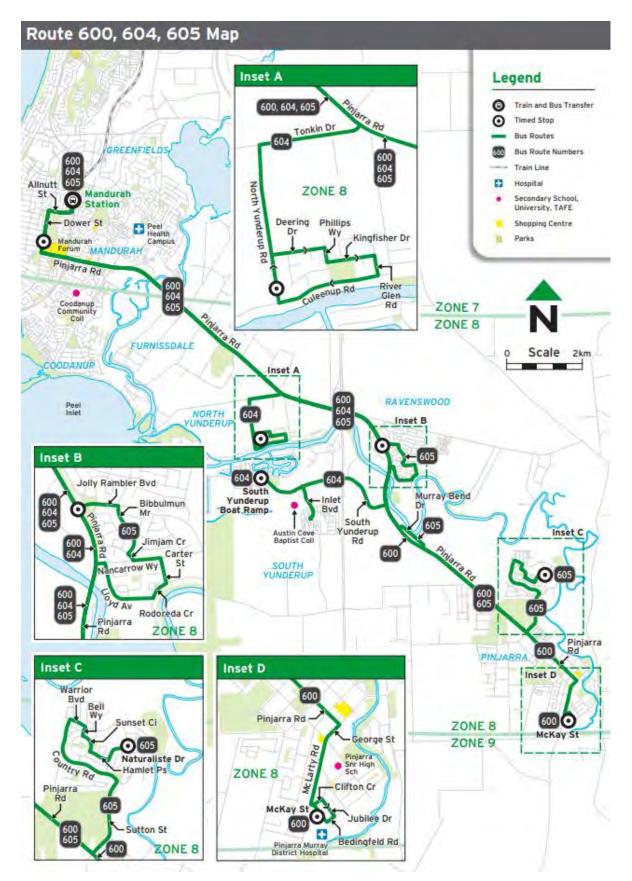


Figure 9: Transperth public transport plan

Source: Transperth









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

A footpath is provided on the western side of James Street for walking and cycling access to 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 3.

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 3: 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

The 5-minute walking catchment to and from the site is shown in Figure 10. Most of the town centre is accessible to the south-east



Figure 10: 5-minute walking catchment isochrone







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

There is no cycle-specific infrastructure provided near the subject site. People may choose to cycle on the road with wide lanes shared with general traffic. Alternatively, people are legally permitted to cycle on footpaths.

10.2 Bicycle parking and end of trip facilities

Bicycle parking for 6 bicycles is provided as part of the proposed development.

10.3 Sustainable transport catchment

As detailed in Figure 11, the subject site is well placed for staff and visitors to travel by sustainable modes of transport. A comfortable 8km or 20-25min cycle provides a large catchment including a spread of suburbs within the Shire.

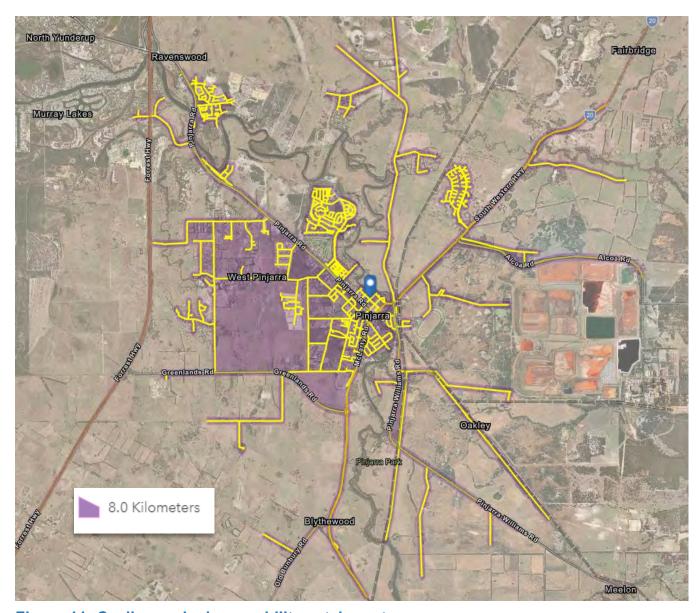


Figure 11: Cycling and micro-mobility catchment







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 12, zero 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.

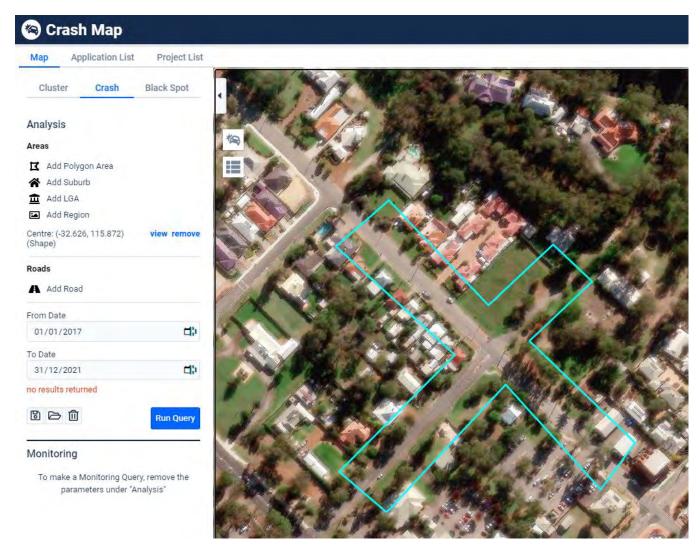


Figure 12: 5-year crash map in the locality (2017-2021)

Source: MRWA crash mapping tool









13 Conclusion

This Transport Impact Statement has been prepared by Urbii on behalf of Brallgra Pty Ltd with regards to the proposed child care centre, located at Lot 99 (25) James Street, Pinjarra.

The subject site is situated on the northern corner of James Street and Forrest Street. The site is presently vacant and is surrounded by mostly residential land uses.

It is proposed to develop the site into a child care centre catering for up to 100 children and 17 staff.

The site features good connectivity with the existing road network. There is good public transport coverage through nearby bus and connecting train 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

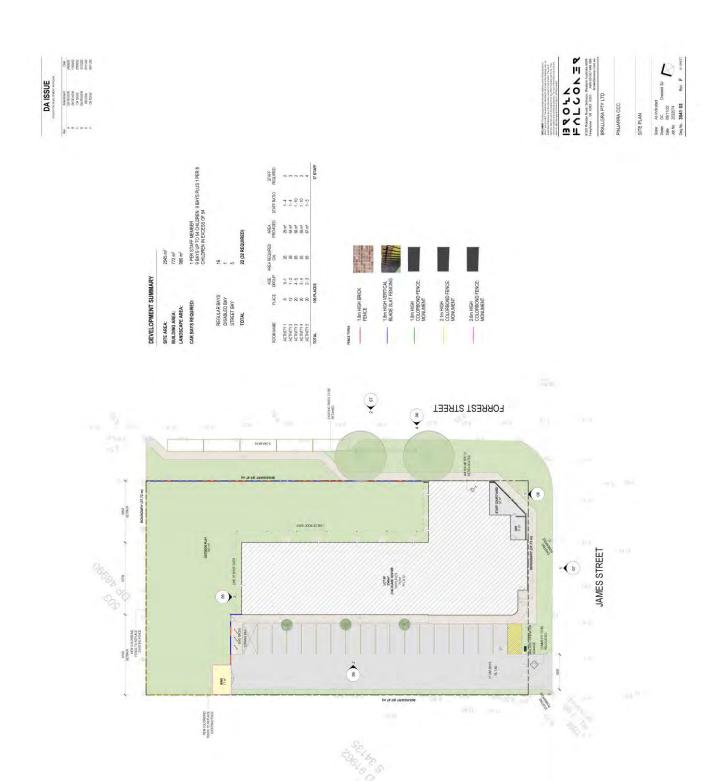
Appendix A: Proposed development plans











Appendix 5 Environmental Noise Assessment



PROPOSED CHILD CARE CENTRE LOT 99 (#25) JAMES STREET PINJARRA

ENVIRONMENTAL ACOUSTIC ASSESSMENT

NOVEMBER 2022

OUR REFERENCE: 30248-1-22246-02



DOCUMENT CONTROL PAGE

ENVIRONMENTAL ACOUSTIC ASSESSMENT

PROPOSED CHILD CARE CENTRE PINJARRA

Job No: 22246-02

Document Reference: 30248-1-22246-02

FOR

PLANNING SOLUTIONS

		DOCUMENT	INFORMATION			
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This report has been prepared in accordance with the scope of services and on the basis of information and documents provided to Herring Storer Acoustics by the client. To the extent that this report relies on data and measurements taken at or under the times and conditions specified within the report and any findings, conclusions or recommendations only apply to those circumstances and no greater reliance should be assumed. The client acknowledges and agrees that the reports or presentations are provided by Herring Storer Acoustics to assist the client to conduct its own independent assessment.

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4.	PROPOSAL	2
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6.	ASSESSMENT	6
7.	CONCLUSION	ç

APPENDICIES

A SITE PLAN

1. INTRODUCTION

Herring Storer Acoustics were commissioned to undertake an acoustic assessment of noise emissions associated with the proposed day care centre to be located at Lot 99 (#25) James Street, Pinjarra.

The report considers noise received at the neighbouring premises from the proposed development for compliance with the requirements of the *Environmental Protection (Noise)* Regulations 1997. This report considers noise emissions from:

- Children playing within the outside play areas of the centre; and
- Mechanical services.

We note that from information received from DWER, the bitumised area would be considered as a road, thus noise relating to motor vehicles is exempt from the *Environmental Protection (Noise) Regulations 1997*. We note that these noise sources are rarely critical in the determination of compliance. However, as requested by council and for completeness, they have been included in the assessment, for information purposes only.

For information, a plan of the proposed development is attached in Appendix A.

2. SUMMARY

Noise received at the neighbouring residences from the outdoor play area would comply with day period assigned noise level, with fencing as shown on Figure 5.2 in Section 5 - Modelling. Additionally, passive play areas and landscaping to be installed as shown on Figure 5.1 in Section 5 - Modelling.

The air conditioning condensing units have also been assessed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* at all times, provided the condensing units are located within the court area; and they be installed with "quiet" night period modes.

It is noted that noise associated with cars movements and cars starting are exempt from complying with the Regulations. However, noise emissions from car doors are not strictly exempt from the Regulations. Noise received at the neighbouring residences from these noise sources would comply at all times, with the fencing, as shown on Figure 5.2 in Section 5.

Thus, noise emissions from the proposed development, would be deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed hours of operation, with the inclusion of the following:

Although the proposed facility would open before 7 am (ie during the night period), the outdoor play area would not be used until after 7am. Thus, noise received at the neighbouring existing residences from the outdoor play area needs to comply with the assigned day period noise level. Additionally, landscaping and / or passive play areas (ie sand pit / veggie garden) be located as shown in Figure 5.1 in Section 5.1, along the north eastern boundary.

- Fencing to be as shown on Figure 5.3 in Section 5 Modelling. We note that for this development, colourbond is an acceptable fencing material.
- The air conditioning condensing units to be located within the court and screened from neighbouring premises. Additionally, the air conditioning units are to be installed with "quiet" night period modes.
- As the air conditioning has not been design at this stage, it is recommended that the design be reviewed / assessed to ensure compliance with the Environmental Protection (Noise) Regulations 1997 are achieved and mitigation measures are as required for the final design.

3. CRITERIA

The allowable noise level at the surrounding locales is prescribed by the *Environmental Protection (Noise) Regulations 1997*. Regulations 7 & 8 stipulate maximum allowable external noise levels. For highly sensitive area of a noise sensitive premises this is determined by the calculation of an influencing factor, which is then added to the base levels shown below in Table 3.1. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern. For other areas within a noise sensitive premises, the assigned noise levels are fixed throughout the day, as listed in Table 3.1.

TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL

Premises	Time of Day	Assigned Level (dB)		
Receiving Noise	Receiving Noise Time of Day		L _{A1}	L _{Amax}
	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
Noise sensitive premises: highly sensitive area	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF
Commercial Premises	All hours	60	75	80

Note:

 L_{A10} is the noise level exceeded for 10% of the time.

 L_{A1} is the noise level exceeded for 1% of the time.

 $L_{\mbox{\scriptsize Amax}}$ is the maximum noise level.

IF is the influencing factor.

It is a requirement that received noise be free of annoying characteristics (tonality, modulation and impulsiveness), defined below as per Regulation 9.

"impulsiveness"

means a variation in the emission of a noise where the difference between L_{Apeak} and $L_{Amax(Slow)}$ is more than 15 dB when determined for a single representative event;

"modulation"

means a variation in the emission of noise that -

- (a) is more than 3 dB L_{AFast} or is more than 3 dB L_{AFast} in any one-third octave band;
- (b) is present for more at least 10% of the representative assessment period; and
- (c) is regular, cyclic and audible;

"tonality"

means the presence in the noise emission of tonal characteristics where the difference between –

- (a) the A-weighted sound pressure level in any one-third octave band; and
- (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as L_{ASlow} levels.

Where the noise emission is not music, if the above characteristics exist and cannot be practicably removed, then any measured level is adjusted according to Table 3.2 below.

TABLE 3.2 - ADJUSTMENTS TO MEASURED LEVELS

Where tonality is present	Where modulation is present	Where impulsiveness is present
+5 dB(A)	+5 dB(A)	+10 dB(A)

Note: These adjustments are cumulative to a maximum of 15 dB.

For this development, the closest existing neighbouring residences are located to the south west, north west and north east. It is noted that the premises to the south east are commercial premises. An aerial showing the neighbouring premises are shown below on Figure 3.1.



FIGURE 3.1 - NEIGHBOURING LOTS

At the neighbouring residences, the Influencing Factor has been determined to be +2 dB. Thus, the assigned noise levels would be as listed in Table 3.3.

TABLE 3.3 - ASSIGNED OUTDOOR NOISE LEVEL

Premises	Time of Day	Assigned Level (dB)		
Receiving Noise	Time of Day	L _{A10}	L _{A1}	L _{Amax}
	0700 - 1900 hours Monday to Saturday (Day)	47	57	67
Noise sensitive	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	42	52	67
premises: highly sensitive area	1900 - 2200 hours all days (Evening)	42	52	57
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	37	47	57

Note:

L_{A10} is the noise level exceeded for 10% of the time.

L_{A1} is the noise level exceeded for 1% of the time.

L_{Amax} is the maximum noise level.

4. PROPOSAL

From information supplied, we understand that the child care centre normal hours of operations would be between 0630 and 1830 hours, Monday to Friday (closed on public holidays). It is understood that the proposed childcare centre will cater for a maximum of 100 children: with the following breakdown:

Activity 1	0 - 1 years	8 places
Activity 2	1 - 2 years	12 places
Activity 3	2 - 3 years	20 places
Activity 4	2 - 3 years	20 places
Activity 5	3 – 4 years	20 places
Activity 6	4 – 5 years	20 places

It is noted that although the proposed child care centre would open before 7 am (ie during the night period), the outdoor play area would not be used until after 7am.

5. MODELLING

To assess the noise received at the neighbouring premises from the proposed development, noise modelling was undertaken using the noise modelling program SoundPlan.

Calculations were carried out using the DWER's weather conditions, which relate to worst case noise propagation, as stated in the Department of Water and Environment Regulation "Draft Guidance on Environmental Noise for Prescribed Premises". These conditions include winds blowing from sources to the receiver(s).

Calculations were based on the sound power levels used in the calculations are listed in Table 5.1.

TABLE 5.1 – SOUND POWER LEVELS

Item	Sound Power Level, dB(A)	
Children Playing	0 – 1 years: 76 (per 10 children) 1 – 5 years: 83 (per 10 children)	
Car Moving in Car Park	79	
Car Starting	85	
Door Closing	87	
Air conditioning condensing Unit	3 @ 72	

Notes:

- Given the breakdown in the age of the children, as noted in Section 4, to be conservative, acoustic modelling of outdoor play noise was made, based on following breakdown of children:
 - 1 group of 10 children under 1 year.
 - 9 groups of 10 children over 1 years.
- Noise modelling was based on landscaping to restrict the number of children within this area or passive play areas being located as shown on Figure 5.1.
- The noise level for the air conditioning has been based on the sound power levels used for previous assessment of child care centres. From other studies, we understand that the noise associated with the condensing units would be conservative.
- For this development, it is understood that the air conditioning condensing units would be located within the court and screened from neighbouring premises. Additionally, the air conditioning units are to be installed with "quiet" night period modes.
- The noise modelling has been based the ground level of the development site being 8.10m for the building and outdoor play area; and the car park being at 7.80 m (RL); and the fencing, as shown on Figure 5.2.
- Noise modelling was undertaken to a number of different receiver locations for each of the neighbouring residences. However, to simplify the assessment, only the noise level in the worst case location (ie highest noise level), have been listed.

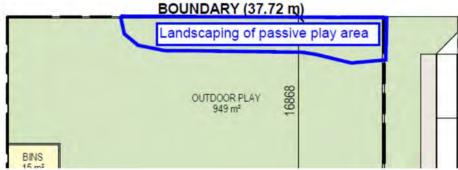


FIGURE 5.1 – OUTDOOR PLAY LANDSCAPING OR PASSIVE

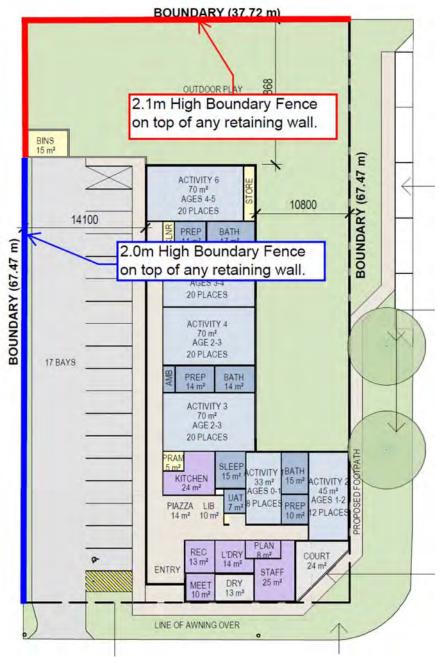


FIGURE 5.2 - BOUNDARY FENCING

6. ASSESSMENT

The resultant noise levels at the neighbouring residence from children playing outdoors and the mechanical services are tabulated in Table 6.1.

From previous measurements, noise emissions from children playing does not contain any annoying characteristics. Noise emissions from the mechanical services could be tonal and a +5 dB(A) penalty would be applicable, as shown in Table 6.1. Noise emissions from both outdoor play and the mechanical services needs to comply with the assigned L_{A10} noise levels.

TABLE 6.1 - ACOUSTIC MODELLING RESULTS FOR $L_{\rm A10}$ CRITERIA OUTDOOR PLAY AREAS AND MECHANICAL PLANT

	Calculated Noise Level (dB(A))			
Neighbouring Premises	Children Blacks	Air Conditioning		
	Children Playing	Day Period	Night Period	
North West	47	13 (18)	8 (13)	
North East	47	10 (15)	5 (10)	
South West	39	37 (42)	32 (37)	

() Includes +5 dB(A) penalty for tonality

With regards to noise associated with cars within the parking area, resultant noise levels are tabulated in Tables 6.2 and 6.3. It is noted that noise emissions from a moving car being an L_{A1} noise level, with noise emissions from cars starting and doors closing being an L_{Amax} noise level.

Based on the definitions of tonality, noise emissions from car movements and car starts, being an $L_{\rm A1}$ and $L_{\rm AMax}$ respectively, being present for less than 10% of the time, would not be considered tonal. Thus, no penalties would be applicable, and the assessment would be as listed in Table 6.2 (Car Moving) and Table 6.3 (Car Starting). However, noise emissions from car doors closing could be impulsive, hence the +10dB penalty has been included in the assessment.

TABLE 6.2 - ACOUSTIC MODELLING RESULTS L_{A1} CRITERIA CAR MOVING

Neighbouring Premises	Calculated Noise Level (dB(A))
North West	46
North East	34
South West	42

TABLE 6.3 - ACOUSTIC MODELLING RESULTS L_{Amax} CRITERIA CAR STARTING / DOOR CLOSING

Naishbaurina Dramiaa	Calculated Noise Level (dB(A))		
Neighbouring Premises	Car Starting	Door Closing	
North West	41	44 [54]	
North East	36	37 [47]	
South West	46	47 [57]	

[] Includes +10 dB(A) penalty for impulsiveness.

Tables 6.4 to 6.9 summarise the applicable Assigned Noise Levels, and assessable noise level emissions for each identified noise.

TABLE 6.4 – ASSESSMENT OF L_{A10} NOISE LEVEL EMISSIONS OUTDOOR PLAY (DAY PERIOD)

OUT DOOK TEAT (DATTERIOD)				
Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level	
North West	47	47	Complies	
North East	47	47	Complies	
South West	39	47	Complies	

TABLE 6.5 – ASSESSMENT OF $L_{\rm A10}$ DAY NOISE LEVEL EMISSIONS MECHANICAL SERVICES

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level
North West	18	47	Complies
North East	15	47	Complies
South West	42	47	Complies

TABLE 6.6 – ASSESSMENT OF La $_{10}$ NIGHT PERIOD NOISE LEVEL EMISSIONS MECHANICAL SERVICES

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level			
North West	13	37	Complies			
North East	10	37	Complies			
South West	37	37	Complies			

TABLE 6.7 – ASSESSMENT OF $L_{\rm A1}$ NIGHT PERIOD NOISE LEVEL EMISSIONS CAR MOVEMENTS

G. III. 111.0						
Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level			
North West	46	47	Complies			
North East	34	47	Complies			
South West	42	47	Complies			

TABLE 6.8 – ASSESSMENT OF Lamax NIGHT PERIOD NOISE LEVEL EMISSIONS CAR STARTING

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level	
North West	41	57	Complies	
North East	36	57	Complies	
South West	46	57	Complies	

TABLE 6.9 – ASSESSMENT OF Lamax NIGHT PERIOD NOISE LEVEL EMISSIONS CAR DOOR

Location	Assessable Noise Level dB(A)	Applicable Assigned Noise Level (dB(A))	Exceedance to Assigned Noise Level			
North West	54	57	Complies			
North East	47	57	Complies			
South West	47	57	Complies			

7. CONCLUSION

Noise received at the neighbouring residences from the outdoor play area would comply with day period assigned noise level, with fencing as shown on Figure 5.2 in Section 5 – Modelling and the north eastern boundary, as shown in Figure 5.1 in Section 5.1, is landscaped or includes passive play areas.

The air conditioning condensing units, being located within the bin store, have also been assessed to comply with the requirements of the *Environmental Protection (Noise) Regulations* 1997 at all times, with the inclusion of the noise mitigation, as outlined below.

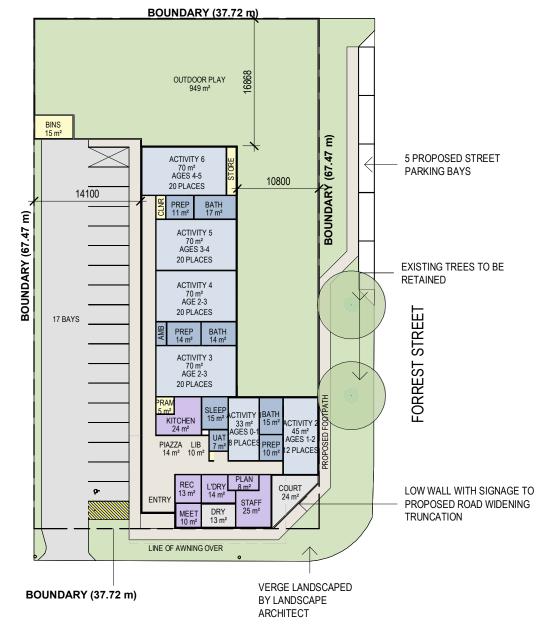
It is noted that noise associated with cars movements and cars starting are exempt from complying with the Regulations. However, noise emissions from car doors are not strictly exempt from the Regulations. Noise received at the neighbouring residences from these noise sources would comply at all times, with the fencing, as shown on Figure 5.2 in Section 5.

Thus, noise emissions from the proposed development, would be deemed to comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed hours of operation, with the inclusion of the following:

- Although the proposed facility would open before 7 am (ie during the night period), the outdoor play area would not be used until after 7am. Thus, noise received at the neighbouring existing residences from the outdoor play area needs to comply with the assigned day period noise level. Additionally, landscaping and / or passive play areas (ie sand pit / veggie garden) be located as shown in Figure 5.1 in Section 5.1, along the north eastern boundary.
- Fencing to be as shown on Figure 5.2 in Section 5 Modelling. We note that for this development, colourbond is an acceptable fencing material.
- The air conditioning condensing units to be located within the court and screened from neighbouring premises. Additionally, the air conditioning units are to be installed with "quiet" night period modes.
- As the air conditioning has not been design at this stage, it is recommended that the design be reviewed / assessed to ensure compliance with the Environmental Protection (Noise) Regulations 1997 are achieved and mitigation measures are as required for the final design.

APPENDIX A

SITE PLAN



JAMES STREET

1 - SITE PLAN

1:500

PROJECT SUMMARY

PINJARRA CHILD CARE CENTRE

NUMBER OF PLACES TOTAL SITE AREA BUILDING AREA BUILDING AREA PER OUTDOOR PLAY ARE OUTDOOR PLAY ARE	PLACE EA REQ	ĒD	100 2545m ² 785m ² 7.85m ² 700m ² 949m ²
PARKING ON SITE STREET PARKING TOTAL BAYS PROVID	DED		17 5 22
ROOM	PLACES	AREA	AREA REQ
ACTIVITY 1	8	33m ²	26m ²
ACTIVITY 2	12	44m ²	45m ²
ACTIVITY 3	20	70m ²	65m ²
ACTIVITY 4	20	70m ²	65m ²
ACTIVITY 5	20	70m ²	65m ²
ACTIVITY 6	20	70m ²	65m ²
TOTAL	100		



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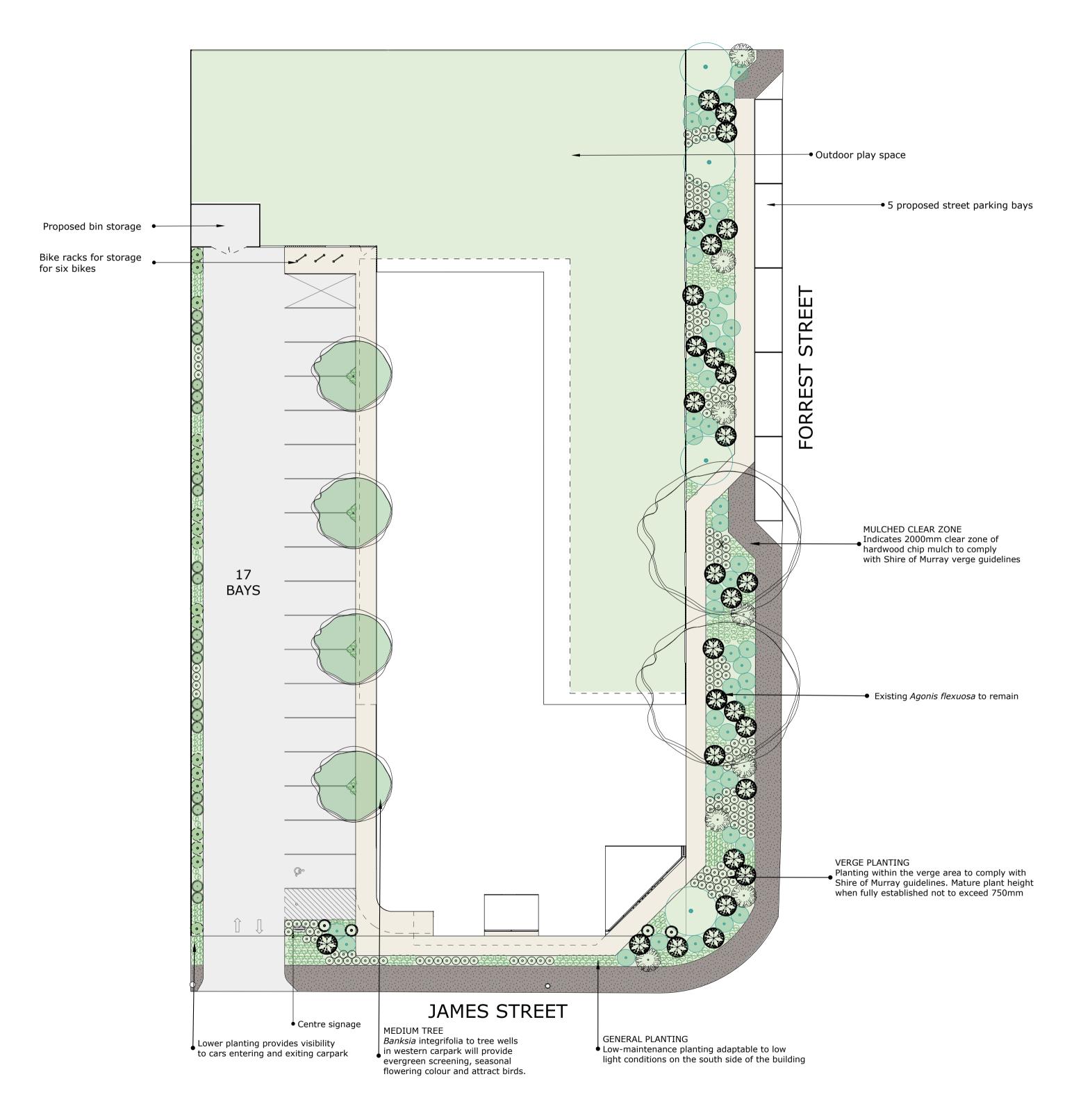
PINJARRA CCC 20

Dwg No. SK0 Rev. A Scale. As indicated@ A3

Appendix 6 Landscape Plan

PINJARRA CHILDCARE CENTRE

25 JAMES STREET, PINJARRA WA 6208



LANDSCAPE - OVERALL CONCEPT

The landscape design seeks to simultaneously beautify the new Pinjarra Child Care Centre and also provide a functional purpose through heat reduction, shade and weed suppression. In beautifying the new building, the landscape will soften the building into the largely residential borrowed landscape, provide a degree of screening from the street and a pleasing outlook for surrounding residential neighbors while also attracting local bird and insect life. As a functional element, the landscape design minimises the heat island effect, contributes to reduction of heat on built surfaces and will suppress the growth of weeds on the extensive verge.

The property will be enhanced with a bird-attracting native garden. Feature planting to the front entrance will frame signage and screen the carpark from neighbors while also allowing for visibility of cars entering and exiting the carpark at peak times. A series of four Coastal Banksias provide informal screening at an increased height and contribute to heat reduction on the north facing wall of the structure. A soothing colour palette of green, silver and shades of yellow and cream has been selected to complement the architecture and sophisticated material selections, creating a pleasing surrounding for families and staff as they enter and leave the centre. The cohesive palette will also be attractive to neighboring residents.

Consideration has been given to the purpose of the building and the use of built materials. The plants selected are tactile, non irritating species that provide visual interest for children at multiple heights and display a changing palette of colours and flowers throughout the year. Particular attention has been paid to ensuring that while species are native and low maintenance they also will not cause harm to children who may touch or pick plant material. Additionally where vertical blade fencing has been used and the planting to the exterior of the centre will form the backdrop to the internal play area, tactile flowering species have been intentionally placed where they can become a point of interaction for children and educators and seasonality noted.

The plants that have been chosen will thrive in the location and were selected with long-term maintenance in mind, with tree species that have non-damaging root morphologies for surrounding built structures, and smaller planting that is drought tolerant, pest and disease resistant, long-lived and selected for the position of garden beds in relation to orientation.



Waterwise Rating:

Height: 15m high x 6m wide

MEDIUM TREE Banksia integrifolia Hardy, upright, broad domed evergreen tree with a distinctive velvety silver underside to foliage. Pale yellow cylindrical flowers from summer to Environment: Full-sun Soil: Well drained

SHRUB: BIRD ATTRACTING Correa 'Snowbelle' A rounded shrub in its natural form which can be pruned into a formal sphere if required.

Environment: Full-sun and part-shade Soil: Well-drained Waterwise Rating: Height: 1.2m high x 1.5m wide Flower: White flowers early in spring, very bird-attracting Rate of growth: Fast



Acacia cognata 'Limelight' A compact shrub with a dense, mounded, weeping habit of soft decorative foliage. Environment: Full-sun to part-shade Soil: Well drained Waterwise Rating: ** Height: 1m high x 1m wide Maintenance: Low



FLOWERING PLANT Anigozanthus 'Bush Diamond' (White A naturally compact plant with evergreen strappy foliage producing a profusion of off-white flowers on branched stems Environment: Full-sun to part-shade Soil: Adaptable to a range of conditions Waterwise Rating: * Height: 0.7m high x 0.6m wide Maintenance: Low



GROUNDCOVER Banksia petiolaris A prostrate form of banksia with a spreading habit and long, upright serrated silver leaves. Bird attracting, cylindrical flower spikes emerge brown in spring and summer and turn bright yellow. Good for erosion control and weed suppression Environment: Full-sun to shade Soil: Tolerates most conditions Waterwise Rating: * Height: 0.6m high x 4m wide



Lomandra longifolia 'Nyalla' A clumping, evergreen, fine leaf, strappy perennial with blue-green foliage and yellow flowers in spring. Environment: Full-sun to part-shade Soil: Well drained Waterwise Rating: 3 Height: 0.8m high x 1m wide Maintenance: Low



Dianella tasmanica 'Tasred' Green and red wide strappy foliage with blue flowers in spring and large purple berries in spring and summer. Suitable for mass plantings, low water gardens, and accent planting. Environment: Full-sun to shade Soil: Tolerates most conditions Waterwise Rating: * Height: 0.5m high x 0.5m wide Maintenance: Low



GROUNDCOVER Westringia fruticosa 'Mundi' Hardy groundcover with white flowers on grey-green foliage. Can be left unpruned or can be pruned into lowgrowing architectural shape Environment: Full-sun to part-shade Soil: Well drained Waterwise Rating: ** Height: 0.4m high x 1.5m wide Maintenance: Low



GROUNDCOVER Eremophila glabra 'Compactum' A dense groundcover with distinctive silver-grey foliage and bird attracting, lime green flowers from late winter to autumn. Prune after flowering to maintain a dense habit. Environment: Full-sun Soil: Well drained Waterwise Rating: * Height: 0.5m high x 1.5m wide Maintenance: Low

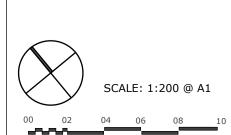


GROUNDCOVER Grevillea crithmifolia 'Green Carpet' A dense, vigerous groundcover with an abundance of white flowers on grey-green foliage. Environment: Full-sun to part-shade Soil: Well drained Waterwise Rating: * Height: 0.3m high x 2m wide Maintenance: Low

Plant List:

Species/Cultivar





Brallgra Pty Ltd SITE 25 James St Pinjarra WA 6330

PAGE NUMBER

ISSUE 10/11/2022 REV D DRAWING DESCRIPTION Landscape Design Pinjarra Childcare Centre

DRAWN BY

POD | ZT

STANDARD REQUIREMENTS

All written dimensions shall take precedence over scale. Check all drawing scales in conjunction with drawing size when setting out.

Contractor shall refer to all contract documents, plans, elevations, specifications and other relevant documents prior to and during the works

Any suspected or known discrepancies prior to the ordering of materials and construction of affected works should be brought to the attention of the supervisor or client

All pricing and works shall be undertaken by contractor in accordance with industry best practice and relevant Australian Standards

Contractor to investigate nature and location of all services affected by their works. This includes utilising a Dial Before You Dig process before commencing works. Failure to take due care will not limit the contractors liabilities

WATERWISE RATING (WA Water Corp) Low Water Use Medium Water Use High Water Use LANDSCAPE CALCULATIONS 2545 sqm Lot size: General landscape:

(includes verge planting)

Canopy cover:

Clumping/Structure/Flowers Acacia cognata 'Limelight' 200mm Correa hybrid 'Snowbelle' 140mm Westringia fruticosa 'Mundi' 140mm Anigozanthos hybrid 'Bush Diamond' 138 140mm Dianella tasmanica 'Tasred' 140mm Eremophila glabra 'Compactum' 130mm Groundcovers 130mm Grevillea crithmifolia 'Green Carpet Banksia petiolaris 130mm Banksia integrifolia 45L 500.74sqm Soft/Grasses Lomandra longifolia 'Nyalla' 140mm =4.3% of lot area

Appendix 7 Bushfire Reporting



Bushfire Management Plan:

Development Application: Lot 99 (25) James Street,

Brallgra Pty Ltd ATF G. Allan Family Trust







DOCUMENT TRACKING

Project Name	Bushfire Management Plan: Development Application: Lot 99 (25) James Street, Pinjarra
Project Number	22PER3083
Project Manager	Stephen Moore
Prepared by	Maitland Ely
Reviewed by	Daniel Panickar (BPAD Level 3 – 37802)
Approved by	Daniel Panickar (BPAD Level 3 – 37802)
Status	Final
Version Number	V3
Last saved on	10 November 2022

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Template 2.8.1

Version control	
Version	Purpose
v1	Draft – Submission to client
v2	Final
v3	Final – updated to include revised site layout

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1. Introduction

1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Brallgra Pty Ltd ATF G. Allan Family Trust to prepare a Bushfire Management Plan (BMP) to support a development application for Lot 99 (25) James Street, Pinjarra (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 2019; 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 in the town of Pinjarra, in the Shire of Murray. The site is surrounded by residential development with patches of unmanaged classifiable vegetation throughout to the east, south and west. To the north of the site runs the Murray River which has classifiable vegetation running along the banks.

This assessment has been prepared by ELA Bushfire Consultant Maitland Ely with quality assurance undertaken by 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 subject site associated with this BMP is categorised as a vulnerable land use due to the activities planned on site and the definitions within the Guidelines. 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

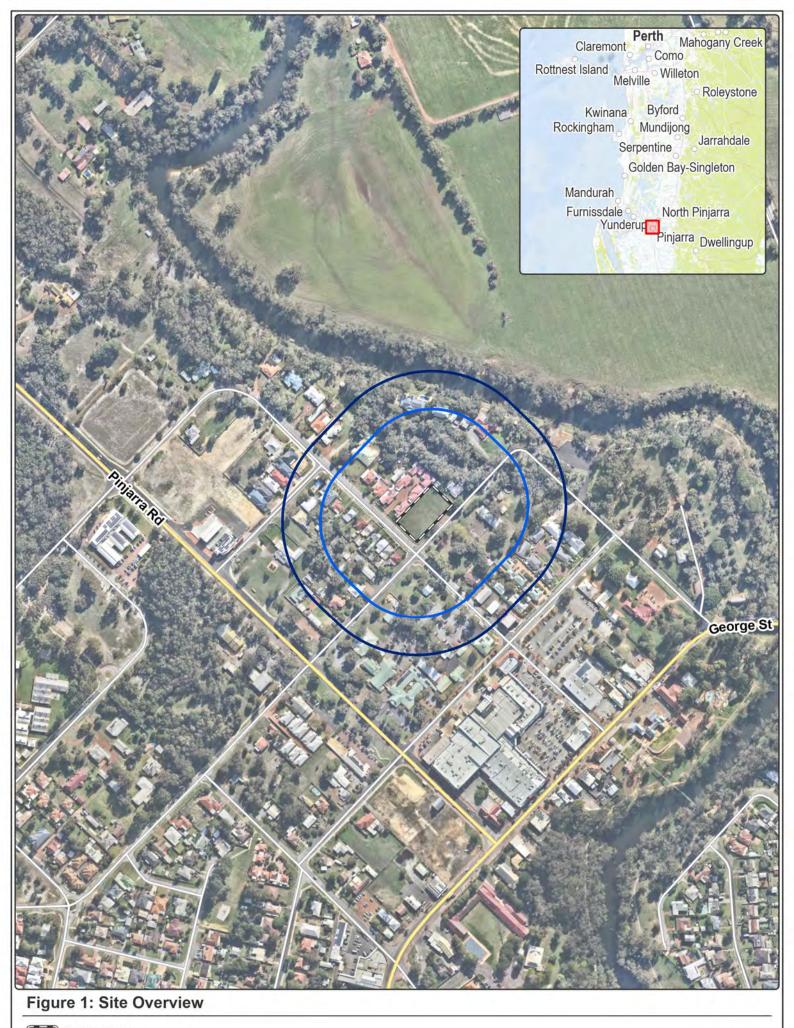
SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.

The subject site had been previously cleared; however, it has been unmanaged, and regrowth of classifiable vegetation has occurred on site. This regrowth will be removed prior to development.

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.

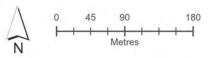
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1



Subject site
100m site assessment

150m site assessment



Datum/Projection: GDA 1994 MGA Zone 50

22PER3083-DD Date: 18/08/2022





JAMES STREET

1 - SITE PLAN

1:500

PROJECT SUMMARY

TOTAL

PINJARRA CHILD CARE CENTRE

TOTAL SIT	_ ,		100 2545m² 785m² 7.85m²
	R PLAY AREA REQ R PLAY AREA PROV	IDED	700m² 949m²
PARKING ON SITE STREET P TOTAL BA	ARKING IYS PROVIDED		17 5 22
ROOM	PLACE	S AREA	AREA REQ
ACTIVITY	1 8	33m ²	26m²
ACTIVITY	2 12	44m ²	45m ²
ACTIVITY	3 20	70m ²	65m²
ACTIVITY	4 20	70m ²	65m²
ACTIVITY	5 20	70m ²	65m²
ACTIVITY	6 20	70m ²	65m ²

100



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PINJARRA CCC

2022074

Dwg No. SK0 Rev. A Scale. As indicated@ A3

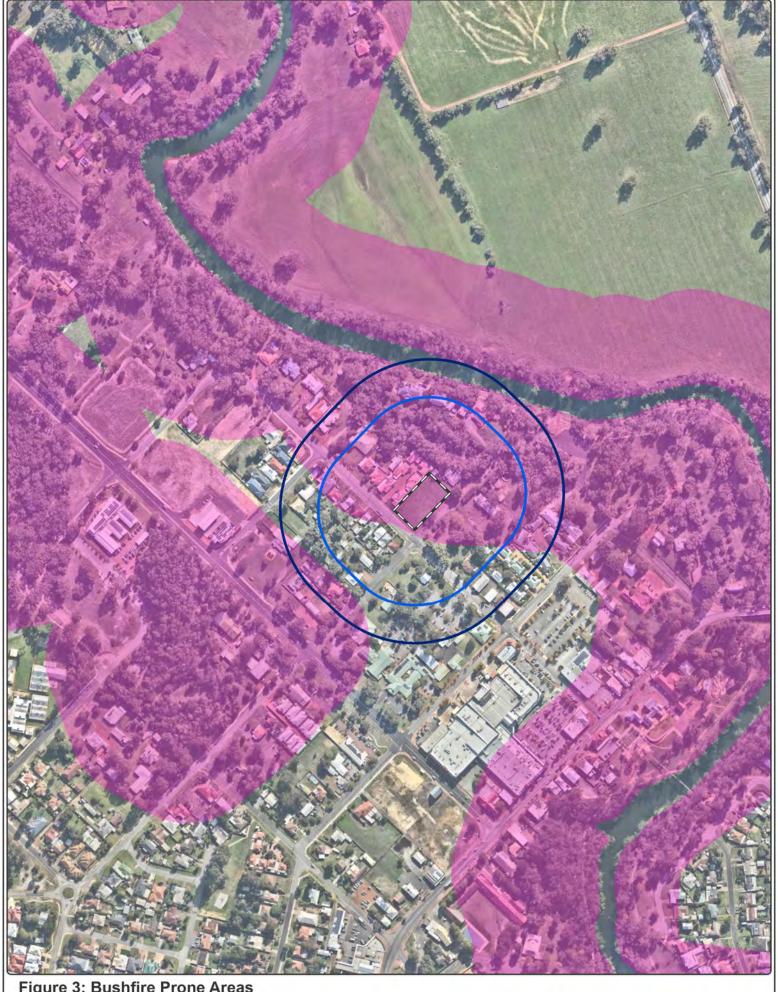
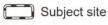


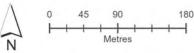
Figure 3: Bushfire Prone Areas



100m site assessment

150m site assessment

Bushfire Prone Mapping (DFES 2021)



Datum/Projection: GDA 1994 MGA Zone 50

22PER3083-DD Date: 18/08/2022

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 22 July 2022.

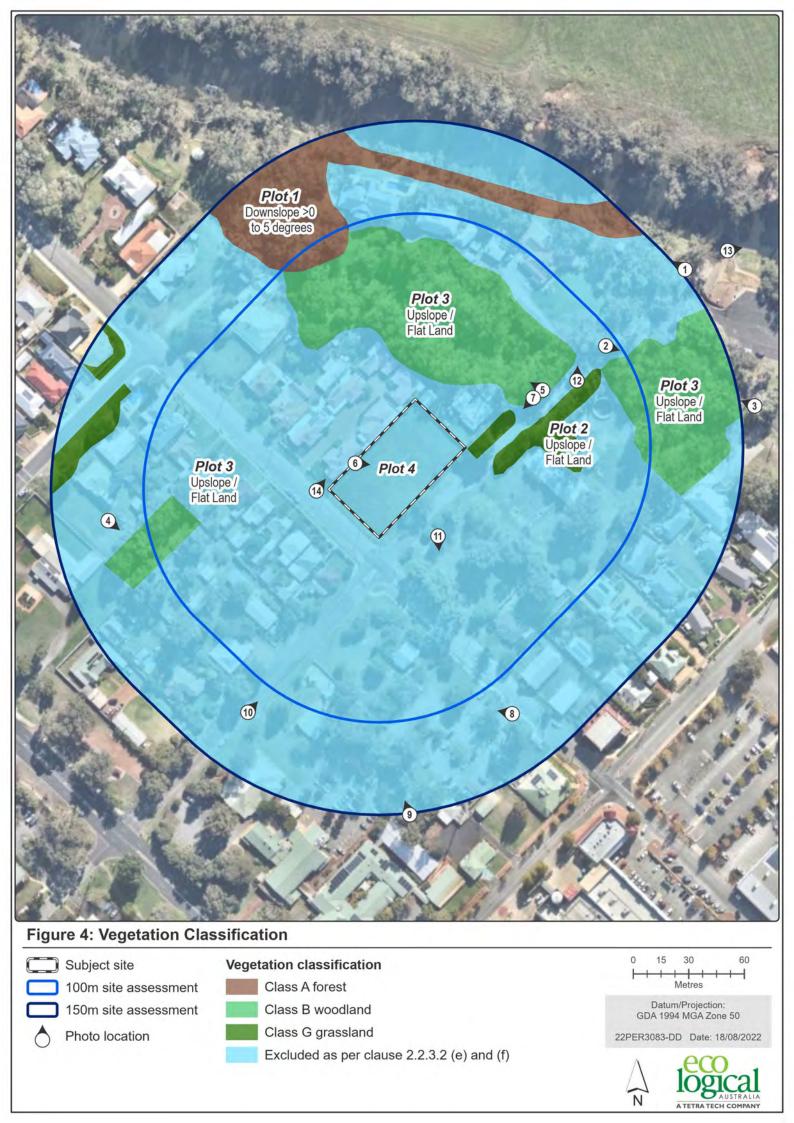
The classified vegetation and effective slope for the proposed development from each of the identified vegetation plots are identified below in Table 1 and Figure 4.

Table 1: Classified vegetation as per AS 3959: 2018

Plot	Vegetation Classification	Effective Slope
1	Class A Forest	Downslope >0 to 5 degrees
2	Class G Grassland	All upslopes and flat land (0 degrees)
3	Class B Woodland	All upslopes and flat land (0 degrees)
4	Excluded AS 3959: 2018 2.2.3.2 € & (f)	-

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

Note – Plot 3 Class B Woodland has a different structure to Plot 1 Class A Forest. The Class B Woodland areas have significantly thinner canopy cover and an absence of a midstorey. In addition, the understorey is almost completely comprised of exotic grasses, thereby warranting a Class B Woodland classification.



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 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		Separat	Separation distances required		
1100	vegetation classification	Effective Stope	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class A Forest	Downslope >0 to 5 degrees	<20	20-<27	27-<37	37-<50	50-<100
2	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6-<8	8-<12	12-<17	17-<50
3	Class B Woodland	All upslopes and flat land (0 degrees)	<10	10-<14	14-<20	20-<29	29-<100
4	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)	-	No separation distances required – BAL-LOW				OW

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 (Table 3).

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. However, given the vulnerable nature of the development ELA recommend that the childcare centre is constructed to BAL-12.5 standards.

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

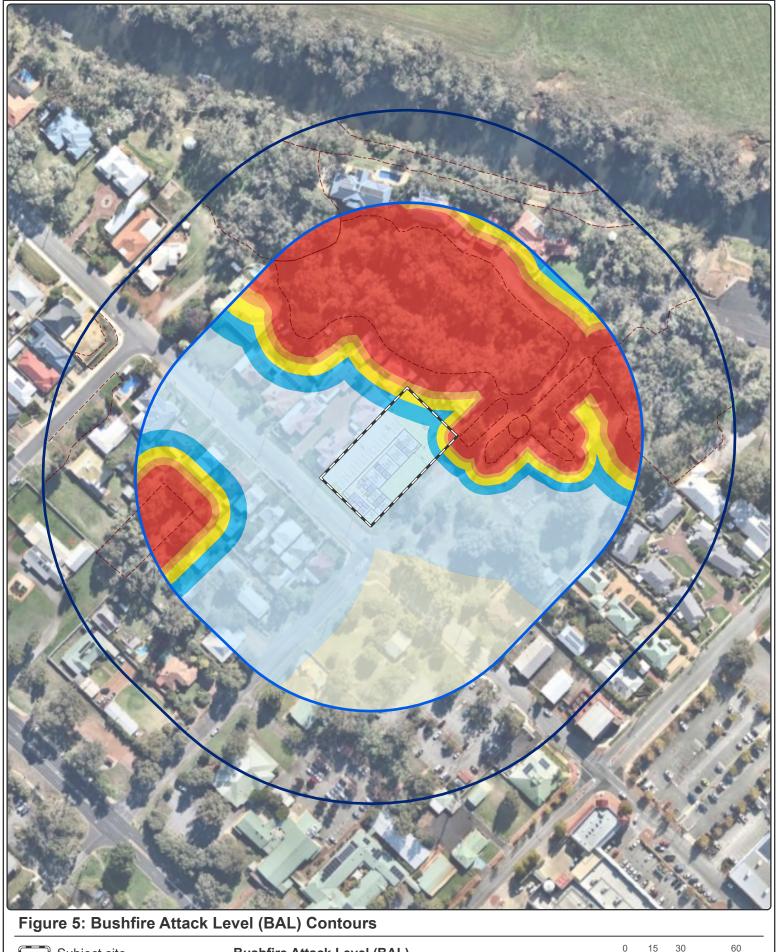
Proposed building	Plot most affecting BAL rating	Separation Distance (m)	BAL Rating
Childcare Centre	Plot 2	20.5	BAL-12.5

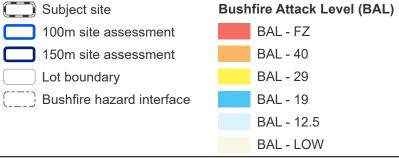
2.3 Identification of issues arising from the BAL assessment

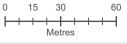
Should there be any changes in development design or vegetation/hazard extent that requires a modified bushfire management response, then the above BAL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP.

The Asset Protection Zone (APZ) area depicted in Figure 6 will be maintained in accordance with Standards for Asset Protection Zones (Appendix B). All other landscaping within the subject site will continue to be maintained to a low threat state as per Clause 2.2.3.2 (f) AS 3959: 2018.

A small portion of the outdoor play area is subject to BAL-FZ/BAL-40. As these BAL ratings do not apply to the proposed childcare centre building, their existence on the site does not preclude development. In fact, it is good design practice to site open space/play areas between assets and bushfire hazards and is even depicted as such on page 65 the Guidelines (regarding siting and design of development). There is nothing in the Guidelines or SPP 3.7 that precludes play areas from being located in areas subject to BAL-FZ and BAL-40.







Datum/Projection: GDA 1994 MGA Zone 50

22PER3083-DD Date: 21/10/2022





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	\boxtimes			The proposed childcare centre building within the subject site will be located in an area subject to BAL rating of ≤BAL-12.5 (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 has an APZ sufficient for the potential radiant heat flux to not exceed 29K/m² and will be managed in accordance with the requirements of 'Standards for Asset Protection Zones' (WAPC 2021; Appendix B). The APZ can be contained within the boundaries of the lot or managed in perpetuity in a low fuel state. The proposed development is considered to be compliant with A2.1.
Element 3: Vehicular access A3.1 Public Roads				The subject site is accessed via existing public roads, with entrance into subject site coming off James Street. 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 requirements in accordance with the Guidelines are detailed in (Appendix C).

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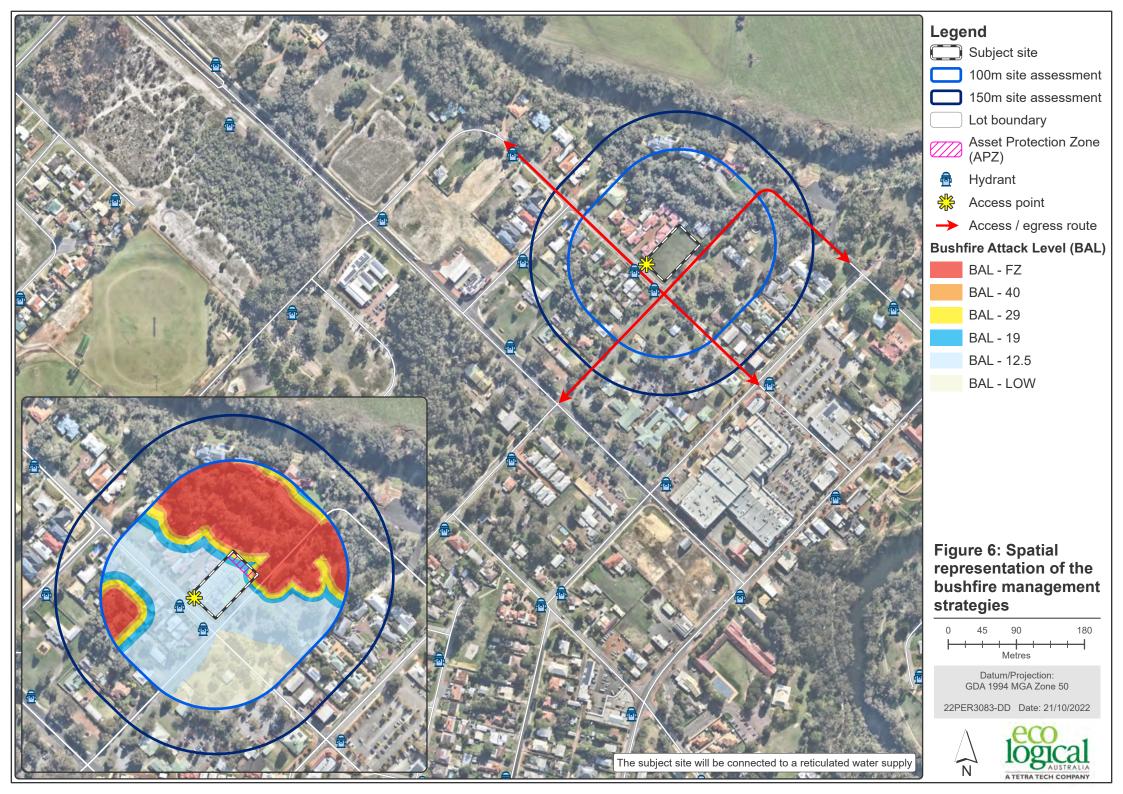
Bushfire Protection Criteria	AS	PS	N/A	Comment
				No public roads are proposed as a part of this Development Application. The proposed development is considered to be
A3.2a Multiple access routes				compliant with A3.1. Three access routes from the subject site to three suitable destinations are available via the existing public road network (Figure 6). James Street extends east and west away from the subject site, before connecting up with either Pinjarra Road which continues west or South Western Highway which continues to the north and south. Please 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				No battle-axe properties are proposed as a part of this development.
A3.6 Private driveways				The subject site is serviced by reticulated water and the site is accessed by a public road where speed limit is not greater than 70 km/hr. The internal road (treated as a private driveway) is less than 70 m in length. Given the above, this acceptable solution does not apply to the Development Application.
Element 4: Water A4.1 Identification of future water supply			\boxtimes	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 in the area 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. The proposed development is considered to be compliant with A4.2.

Bushfire Protection Criteria	AS	PS	N/A	Comment
Element 5: Vulnerable tourism land uses			\boxtimes	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 2019) details evacuation procedures in the event of a bushfire.

All landscaping areas within the subject site will be maintained in accordance with Standards for Asset Protection Zones (Appendix B).



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	issue of Titles		
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	Implement and maintain APZ as depicted in Figure 6.	Developer	
3	Extend reticulated water supply to appropriate areas	Developer	
4	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	
5	Construct internal road network as per plan in Figure 6.	Developer	
6	Implement the Bushfire Emergency Evacuation Plan (BEEP) prior to occupancy (Section 3.2).	Owners	
Prior to	occupancy		
7	Ensure all APZs are implemented and maintained.	Developer	
8	Maintain landscaping within the subject site to a low threat state.	Developer	
Ongoing management			
9	Maintain APZs to the standard in the Guidelines	Owners	
10	Maintain landscaping within the subject site to a low threat state.	Owners	
11	Review the BEEP prepared for the development on an annual basis and updated details/procedures as required	Owners	

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

Department of Fire and Emergency Services (DFES), 2019, *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.

Shire of Murray (SoM), 2021, Firebreak Notice, [Online], available from: 2021-2022-Firebreak-Notice.pdf

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

Photo Point 1

Classified vegetation within this plot is comprised of trees up to 30 m tall with foliage cover of 30% to 70%. Understorey is comprised is of multi-tiered layers of vegetation consisting of a mixture of grasses, shrubs and juvenile trees.

Slope under this vegetation was assessed as downslope >0 to 5 degrees.

South East Elevation © 305°NW (T) = 32.624976, 115,874207 ±8 m A +18 m

Plot 2 Classification or Exclusion Clause

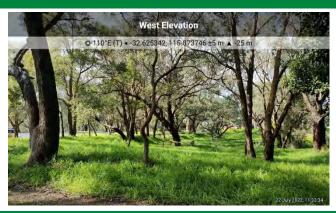
Photo Point 2

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with 10% to 30% foliage cover. Midstorey is absent and understorey is comprised of grasses.

Slope under this vegetation was assessed as upslope/flat land.

Class B Woodland

Class A Forest



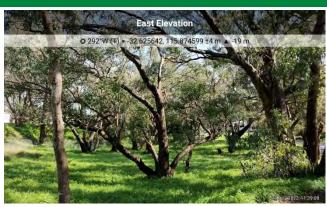
Plot 2 Classification or Exclusion Clause

Photo Point 3

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with 10% to 30% foliage cover. Midstorey is absent and understorey is comprised of grasses.

Slope under this vegetation was assessed as upslope/flat land.

Class B Woodland



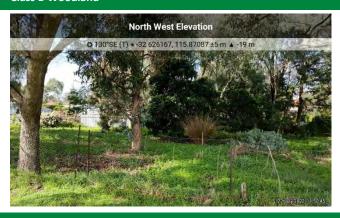
Plot 2 Classification or Exclusion Clause

Photo Point 4

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with 10% to 30% foliage cover. Midstorey is absent and understorey is comprised of grasses and isolated low shrubs.

Slope under this vegetation was assessed as upslope/flat land.

Class B Woodland



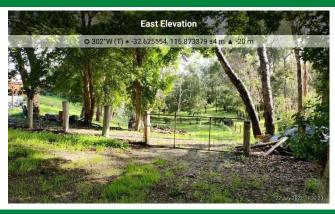
Plot 2 Classification or Exclusion Clause

Photo Point 5

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with 10% to 30% foliage cover. Midstorey is absent and understorey is comprised of grasses.

Slope under this vegetation was assessed as upslope/flat land.

Class B Woodland



Plot 3 Classification or Exclusion Clause

Photo Point 6

Classified vegetation within this plot is comprised of grasses.

Slope under this vegetation was assessed as upslope/flat land.

Class G Grassland



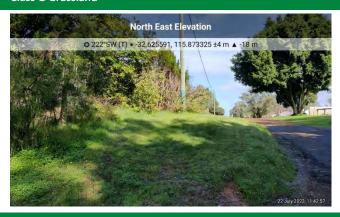
Plot 3 Classification or Exclusion Clause

Photo Point 7

Classified vegetation within this plot is comprised of grasses.

Slope under this vegetation was assessed as upslope/flat land.

Class G Grassland



Plot 4 Classification or Exclusion Clause

Photo Point 8

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of nonvegetated areas such as carparks as well as low threat landscaping areas.

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)



Plot 4 Classification or Exclusion Clause

Photo Point 9

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of nonvegetated areas such as footpaths as well as low threat landscaping areas.

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)



Plot 4 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 10

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of nonvegetated areas such as roads and footpaths as well as low threat areas that are road verge vegetation and managed gardens.



Plot 4 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 11

This area has been excluded under 2.2.3.2 (e) of AS 3959: 2018. The area comprises of low threat vegetation that is managed parkland.



Plot 4 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 12

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of nonvegetated areas such as driveways, roads and residential housing as well as low threat vegetation that is managed residential yards.



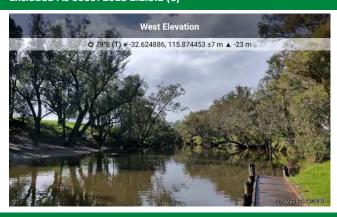
Plot 4 Classification or Exclusion Clause

or a classification of Exclasion class

Photo Point 13

This area has been excluded under 2.2.3.2 (e) of AS 3959: 2018. The area comprises of non-vegetated area that is a river.

Excluded AS 3959: 2018 2.2.3.2 (e)

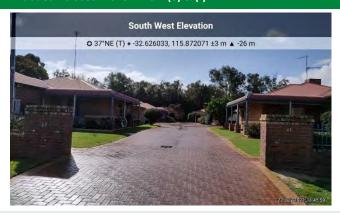


Plot 4 Classification or Exclusion Clause

Photo Point 14

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of nonvegetated areas such as driveways, roads and residential housing as well as low threat vegetation that is managed residential yards.

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)



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 are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used
 - Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors
 - Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare
 - Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy (Figure 7).

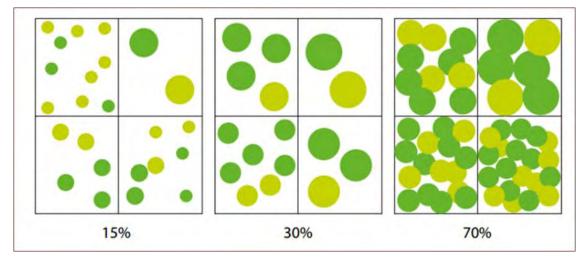


Figure 7: Illustrated tree canopy cover projection (WAPC 2017)

- Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees
- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs
- Grass: should be managed to maintain a height of 100 millimetres or less.

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.

Appendix C - Vehicular access technical requirements (WAPC 2017)

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)		1	.5	
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	

 $^{^{\}rm 1}\,\text{To}$ 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





Bushfire Emergency Evacuation Plan Development Application: Lot 99 (25) James Street, Pinjarra

Brallgra Pty Ltd ATF G.Allan Family Trust

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



DOCUMENT TRACKING

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Template 2.8.1

Version control	
Version	Purpose
v1	Draft – Submission to client
v2	Draft
v3	Draft – updated to include revised site plan

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1. Facility Details

This Bushfire Emergency Evacuation Plan (BEEP) is for the proposed childcare centre at Lot 99 (25) James Street, Pinjarra within the Shire of Murray 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 bushfire management action is:

EARLY CLOSURE OF THE FACILITY UNDER CATASTROPHIC FIRE DANGER RATINGS

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

EVACUATE OFF-SITE (ONLY IF 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 facility
Number of buildings:	1
Number of employees:	17 + (additional staff on site for staff changeover, training, etc.)
Number of occupants:	up to 125 (100 children, 17 + staff and some visitors)
Number of vulnerable occupants/with support needs:	100 children
Estimated maximum number of visitors:	TBC

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<u>Description of support needs</u>: 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 north and north east of the site;
- The vegetation to the east is a narrow strip of unmanaged grassland adjacent to the north east corner of the site that runs further north east. This, along with the woodland vegetation located north of site, results in a BAL-19 for the childcare centre building;
- Bushfire hazards are separated from the development site by an Asset Protection Zone (APZ)
 and low threat landscaped areas within the site;
- Potential ignition sources are from nearby vehicles using major roads or people accessing the nearby bushland;
- 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:

100 children and 17 staff;

Evacuation timing:

- Time for notification of an approaching bushfire and that evacuation is required –
 10 minutes:
- o Time for assembly and mobilisation of all children and staff 15 minutes;
- Off-site evacuation is Pinjarra Civic Centre approximately 300 m walk south;
- 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;
- o 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.

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 Pinjarra Civic Centre;
- Smoke and heat from a bushfire (particularly in a rapid-onset event) may limit the ability for on-foot evacuation to Pinjarra Civic Centre;
- Given the possibility for multiple bushfire scenarios to affect the proposed Childcare Centre, multiple bushfire risk management measures are proposed, which include:
 - o BAL-19 construction with BAL-19 exposure;

- APZ that limits building exposure to BAL-19;
- o Closure on site based on the highest FDR rating; and
- o 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 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.

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 m² which equals 125 m². The total floor space of the proposed Childcare Centre 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 ≤19 kW/m²;
- 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 James Street.

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
Chief Fire Warden	ТВС	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	ТВС
Gardener/ landscape contractor	ТВС	Outside Grounds	Irrigation system enabled if impact of fire imminent; Maintenance of landscaping as per Section 4 of this BEEP	ТВС

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	Pinjarra	(08) 9531 7111
Murray District Hospital	Local Hospital	(08) 9531 7222
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

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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)

Ensure the landscaped grounds are maintained to the requirements of *Standards for Asset Protection Zones (WAPC, 2021)* with the following items 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):

- o 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;
- o 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;
- o 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.

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

- o 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;
- o The pressure relief valve should point away from the house;
- o No flammable material within six metres from the front of the valve; and
- o 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' and the 'Fire Chat Bushfire Preparedness Toolkit' published by DFES:

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¹ https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES Bushfire-Homeowners Survival Manual.pdf

 $^{^2\,\}underline{\text{https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES-Fire-Chat-Bushfire-Preparedness-Toolkit.pdf}$

- 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.
 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 and APZs 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 websites³.

On Catastrophic FDRs, the proposed childcare centre will be closed with all staff and parents/guardians 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 closed
Complete building preparedness checks			By 10 am	By 8 am	
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 Murray 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 website⁴ or call the TFB hotline on 1800 709 355.

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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 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 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 Pinjarra Civic Centre, approximately a 300 m walk to the south (refer to Appendix A for preferred route).

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 NOT WITHIN ADJACENT VEGETATION. 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-19. 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 ADJACENT VEGETATION; OR
- AN EMERGENCY WARINGIN 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 ther Facility Manager; Establish regular communication between the Facility Manager or delegate for the facility and all staff, children 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 website; 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 NO FIRE IN ADJACENT VEGETATION If a fire is spotted, report immediately to 000 and ther Facility Manager; Request information from DFES regarding bushfire time to arrival and if off-site evacuation to the Pinjarra Civic Centre should be undertaken; Facility Manager or delegate to nominate a sole liaisor officer to contact DFES immediately to determine appropriate course of action and inform all staff, children 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 ADJACENT VEGETATION 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; 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.
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	 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; 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
	a regular basis as they may change at any time and without notice.	
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 personnel 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.

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

Eco Logical Australia 2022. *Bushfire Management Plan: Development Application:* Lot 99 (25) James Street, Pinjarra. Prepared for Brallgra Pty Ltd ATF G. Allan Family Trust.

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 99 (25) James Street, Pinjarra, Western Australia

Infrastructure:

A Childcare Centre and associated outdoor facilities.

Occupation / Visitation (number of people):

Maximum staff, students and visitors: 125 people (100 children, 17+ staff and some

Access:

James 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 –

 $\underline{https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireF} acts heets/DFES$ Bushfire Factsheet-Calendar for Preparation.pdf

- Emergency WA <u>www.emergency.wa.gov.au</u>
- 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 3	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 Catastrophic FDRs, the Childcare Centre will be closed.

ACTION	NO RATING	MODERATE	нібн	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 closed
Complete building preparedness checks			By 10 am	By 8 am	
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 Pinjarra Civic Centre, approximately a 300 m walk south.

The secondary option is to **shelter-in-place** 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/BushfireManualsand Guides/DFES Bushfire-Homeowners Survival Manual.pdf

https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsand Guides/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 enterina
- 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

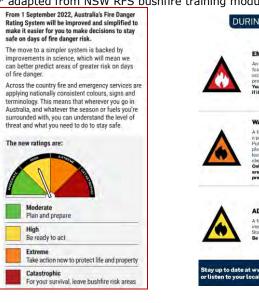
- When the fire arrives, go inside to protect you from the radiant heat
- Ensure you have torches ready as it is likely to become completely dark and you will not be able to
- Patrol the inside of the building, including the roof space for sparks and embers
- Remember if your life is at risk, call Triple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

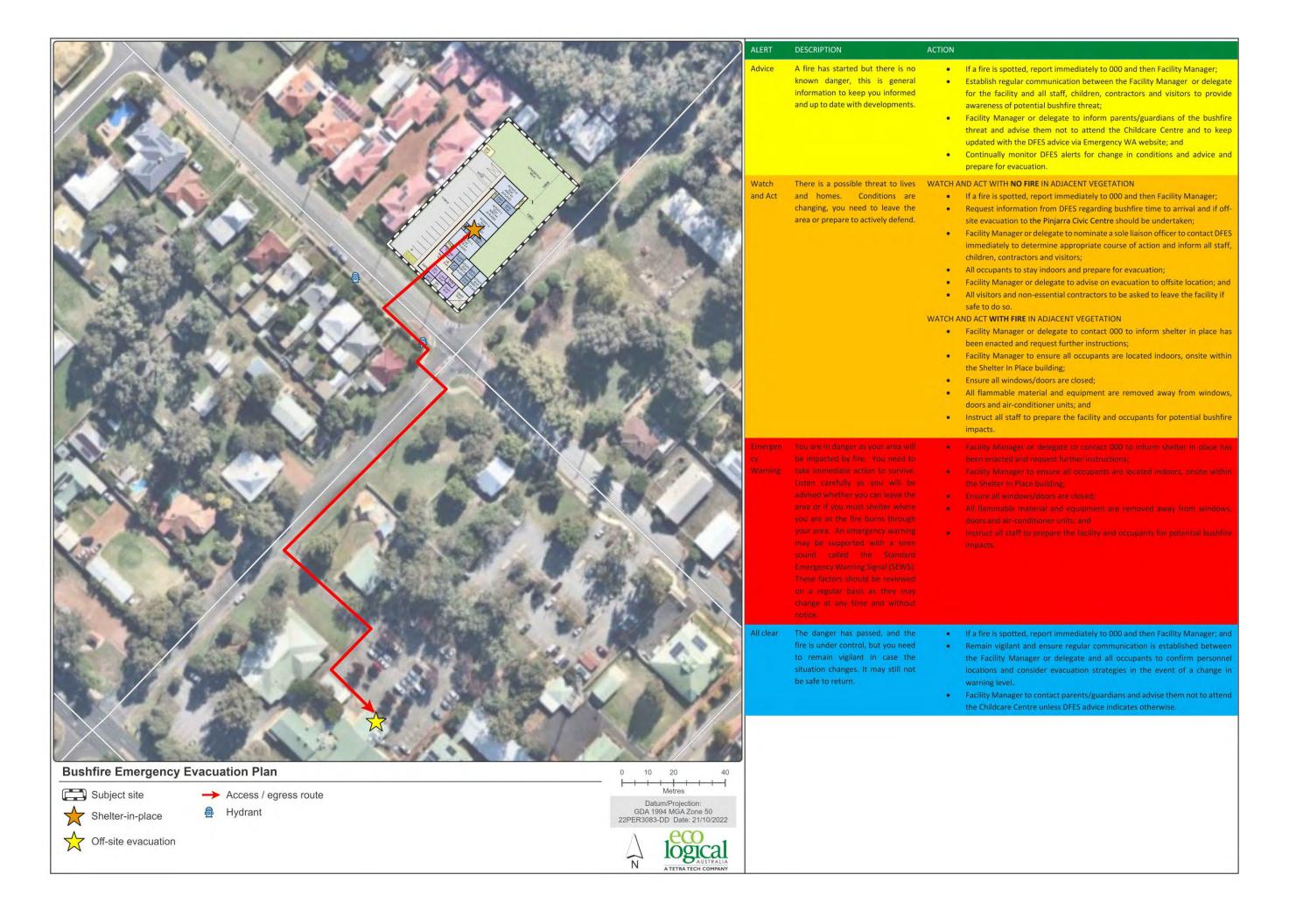
What to do if caught in a bushfire ON FOOT/ IN VEHICLE

- 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 around 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.



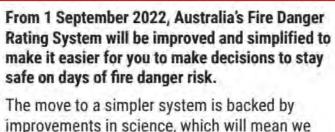


DFES warning and Fire Danger Rating information



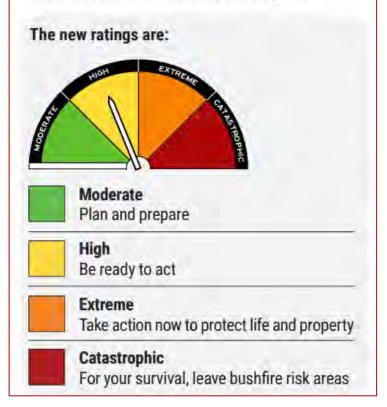
Appendix B: DFES Fire Danger Rating and Warning Systems

Refer to DFES Fire Chat Bushfire Preparedness Tool kit and DFES website for further details⁵



The move to a simpler system is backed by improvements in science, which will mean we can better predict areas of greater risk on days of fire danger.

Across the country fire and emergency services are applying nationally consistent colours, signs and terminology. This means that wherever you go in Australia, and whatever the season or fuels you're surrounded with, you can understand the level of threat and what you need to do to stay safe.



⁵https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES-Fire-Chat-Bushfire-Preparedness-Toolkit.pdf

BUSHFIRE WARNING SYSTEMS:

Similar to a cyclone categorisation tool. The alerts provide information on the severity of bushfires once it has started. The alert level reflects the risk to life and property.

DURING A BUSHFIRE







EMERGENCY WARNING

An out of control fire is approaching very fast. You need to act immediately to survive. If you haven't prepared your home it is too late. You must leave now if it is safe to do so.

WATCH AND ACT

A fire is approaching and is out of control. Put your plan into action. If your plan is to leave, make sure you leave early. Only stay if you are mentally, physically and emotionally prepared to defend your property and you have all the right equipment.

ADVICE

A fire has started but there is no immediate danger. Stay alert and watch for signs of a fire.

When you understand these warning systems, continue to Step 1.







Proposed Child Day Care Centre Lot 99 (25) James Street, Pinjarra Submissions Schedule

No.	Submitter	Issue Raised	Officer Comment
1.	Peter and Norma Glass Landowner 41 James Street Pinjarra (135m north west of subject site) OO22/30840	Objection 1. The application provides all the usual consultant analysis about noise and traffic flow and how it would not impact the local residents. The experts go on to say, all the analysis would indicate, for people living close to the new facility, the increased noise and	The application does include supporting technical reports including Transport Impact Statement and Environmental Noise Assessment which generally show that traffic and parking can be adequately managed and the noise impacts of
		traffic will fall into a category that is acceptable and can be managed. The outcome of the expert documents are predictable and of course support the proponents in establishing what will be a considerable operation and therefore, needs to be located in a business district.	
		2. This Childcare Centre will have a customer base that some retailers in George Street would envy and the scale and the impact of the facility is obvious. It's worth remembering that just because a paid report says a development won't affect someone's amenity, doesn't mean in reality, that it won't.	The proposed child care centre proposes a maximum of 100 children at any one time.
		3. The Shire of Murray says in part that it supports the need for effective child day care services within its municipal boundaries provided that the operations are appropriately located and do not impact the	The proposed child care centre will draw from a catchment beyond the immediate area. Whilst the site is zoned Residential, is directly adjacent to the edge of the Town Centre zone. Whilst the



character and amenity of the local area. It goes on to say, "to locate child day care services appropriately in relation to their surrounding service area". In my immediate area I'm unable to find a single customer who would use the facility. In fact, apart from a few high school kids I see from time to time, this area is predominantly populated by older aged persons. The customer base that this facility is expected to draw from, is more likely to be derived from newer outlying areas such as Ravenswood and any reasonable analysis would show there would be no customers walking or riding to this facility.

use will generate additional traffic and activity, the site is located on an access road and even with the additional likely 400 trips per week day will be well within its capacity. Given the existing space for on-street parking additional on-street parking is likely mainly during morning and afternoon peaks. Additional noise will be likely associated with the use however a number of mitigation measures are proposed and the resultant noise will be within the limit of the Environmental Protection (Noise) Regulations. The design of the building has a residential character and scale and well below the scale that could be located on the site acknowledging the Residential RAC0 zoning of the site.

- 4. Earlier this year Joondalup Council changed its policy concerning child care centres in residential areas. Amendments include, child care centres in residential zones having to share a boundary with a non-residential property to provide "at least one boundary" to locate "potential noise-generating activities such as outdoor play areas and car parking", and be limited to a maximum of 50 children to reduce the size, scale, noise and traffic. The impact of noise and traffic around Childcare Centres in residential areas in Joondalup has been acknowledged and the same issue will be realised if the James Street development is approved.
- Each proposal needs to be considered on its own merit, recognising its own context and applicable planning framework. Policies of another local government are not a relevant consideration to this application.

5. The idea that child care land use is "consistent with the objectives of a residential zone and provides a necessary service to the community", is

This site is zoned Residential RAC0 directly adjacent to the Town Centre zone. A child day care centre is a discretionary use in the



inconsistent with the types of corporate child care facilities presented to Council's for approval and we shouldn't expect the residential community to accept any down grade of the character and amenity of existing residential areas.

Residential zone. The Pinjarra Activity Centre LPP identifies the site within the Mixed-use precinct where there are a number of preferred uses including shop, restaurant/cafe, small bar, art gallery, convenience store, grouped dwellings and multiple dwellings. Under the Planning and Development (Local Planning Schemes) Regulations 2015, one the objectives of a Residential zone is to provide for a range of non-residential uses, which are compatible with and complementary to residential development. Child Day Care Centres are typically considered compatible within a Residential zone, subject to amenity considerations being addressed.

6. I would like to bring your attention to the last Council meeting of the Bunbury City in which Council rejected a proposal to establish a child care centre in a residential area on Beach Road. The vote was a resounding 8 – 3 defeat for the proponents, who will no doubt appeal. Further investigation of other Council's and decisions concerning the location of child care centres has revealed how problematic it has become for decision makers because they have a responsibility to support any new facility where the location has the correct zoning. Child care centres were once mum and dad operations that looked after five or six kids and I would be happy to see that type of operation at this location. However, the corporate model that is being offered goes against the intention and the spirit of the zoning at this site and needs to be located in the business precinct. Council policy needs to be changed to reflect

Each proposal needs to be considered on its own merit, recognising its own context and applicable planning framework. Policies and decisions of other local government are not a relevant consideration to this application.



		constituents' expectation of, quiet enjoyment, while living in a residential area.	
2	John Tuckey Landowner 39 James Street Pinjarra (120m north west of subject site) OO22/31360	Objection 1. No and you don't take any notice of what others say in anyway it's a done deal! Don't know why you even bother with the process. That would save all ratepayers money and the proponent's time and money. Merry Xmas.	



Bushfire Management Plan:

Development Application: Lot 99 (25) James Street,

Brallgra Pty Ltd ATF G. Allan Family Trust







DOCUMENT TRACKING

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Template 2.8.1

Version control						
Version	Purpose					
v1	Draft – Submission to client					
v2	Final					
v3	Final – updated to include revised site layout					
v4	Final – updated to include revised site layout					

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1. Introduction

1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Brallgra Pty Ltd ATF G. Allan Family Trust to prepare a Bushfire Management Plan (BMP) to support a development application for Lot 99 (25) James Street, Pinjarra (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 2021; 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 in the town of Pinjarra, in the Shire of Murray. The site is surrounded by residential development with patches of unmanaged classifiable vegetation throughout to the east, south and west. To the north of the site runs the Murray River which has classifiable vegetation running along the banks.

This assessment has been prepared by ELA Bushfire Consultant Maitland Ely with quality assurance undertaken by 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 subject site associated with this BMP is categorised as a vulnerable land use due to the activities planned on site and the definitions within the Guidelines. 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 had been previously cleared; however, it has been unmanaged, and regrowth of classifiable vegetation has occurred on site. This regrowth will be removed prior to development.

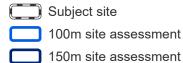
No revegetation is proposed within the development and landscaping will be maintained in a low-threat state in accordance with Clause 2.2.3.2 of AS 3959: 2018.

1

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Figure 1: Site Overview





Datum/Projection: GDA 1994 MGA Zone 50 22PER3083-DD Date: 10/11/2022



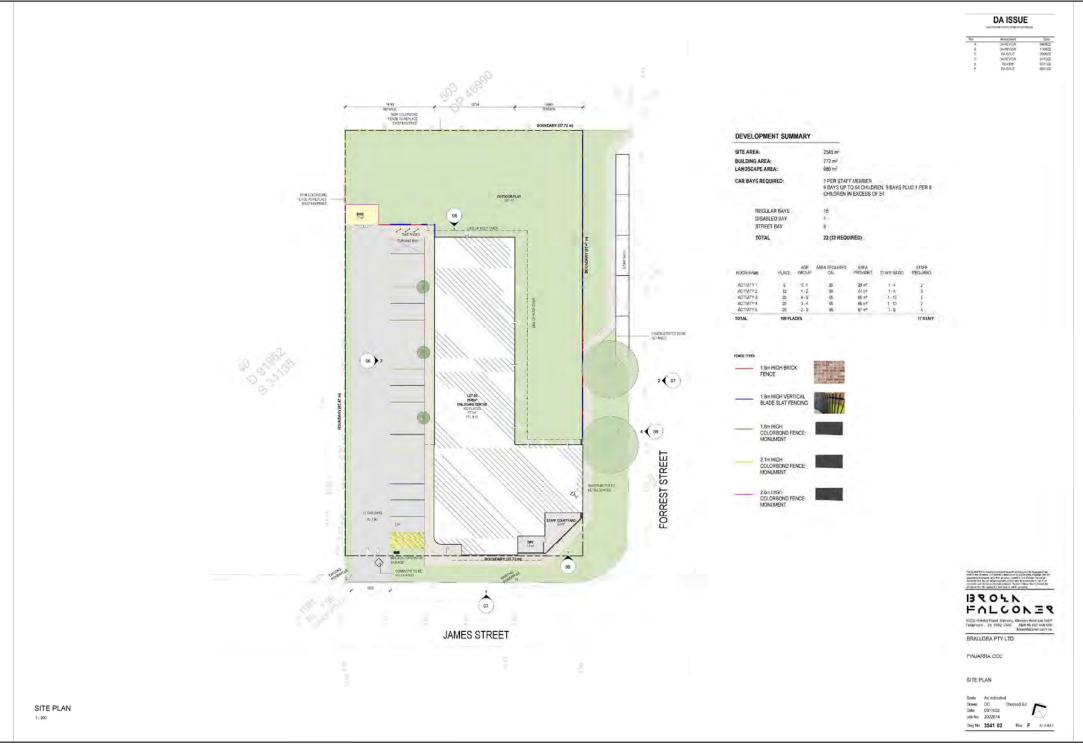


Figure 2: Site Plan

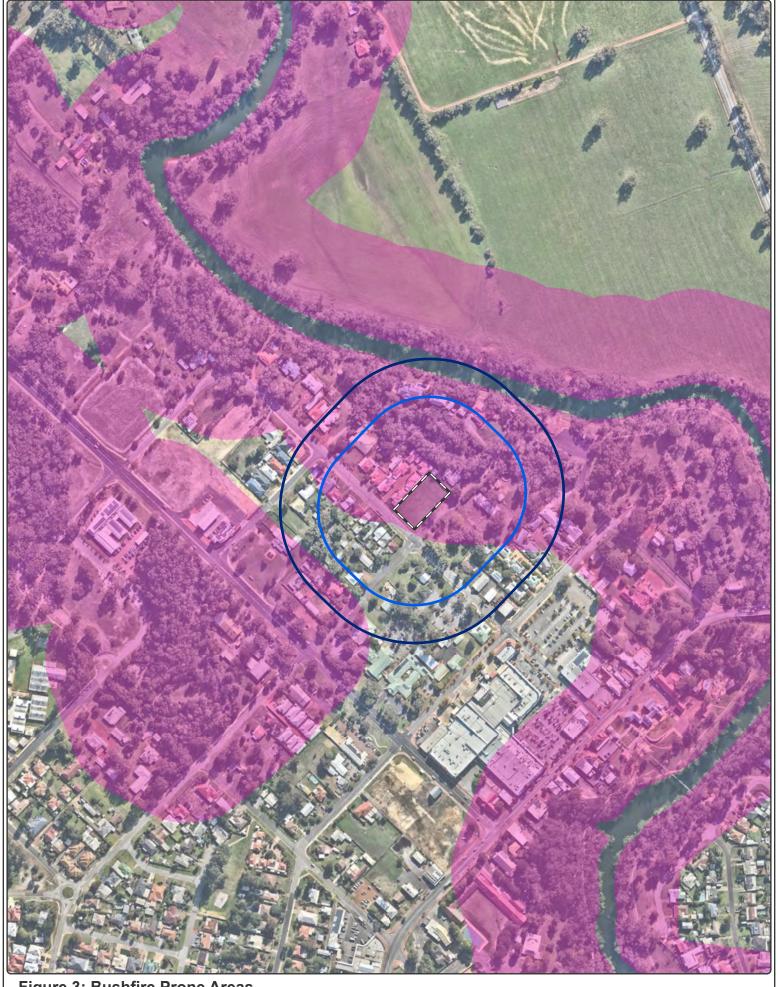


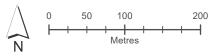
Figure 3: Bushfire Prone Areas

Subject site

100m site assessment

150m site assessment

Bushfire Prone Mapping (DFES 2021)



Datum/Projection: GDA 1994 MGA Zone 50 22PER3083-DD Date: 10/11/2022

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 22 July 2022.

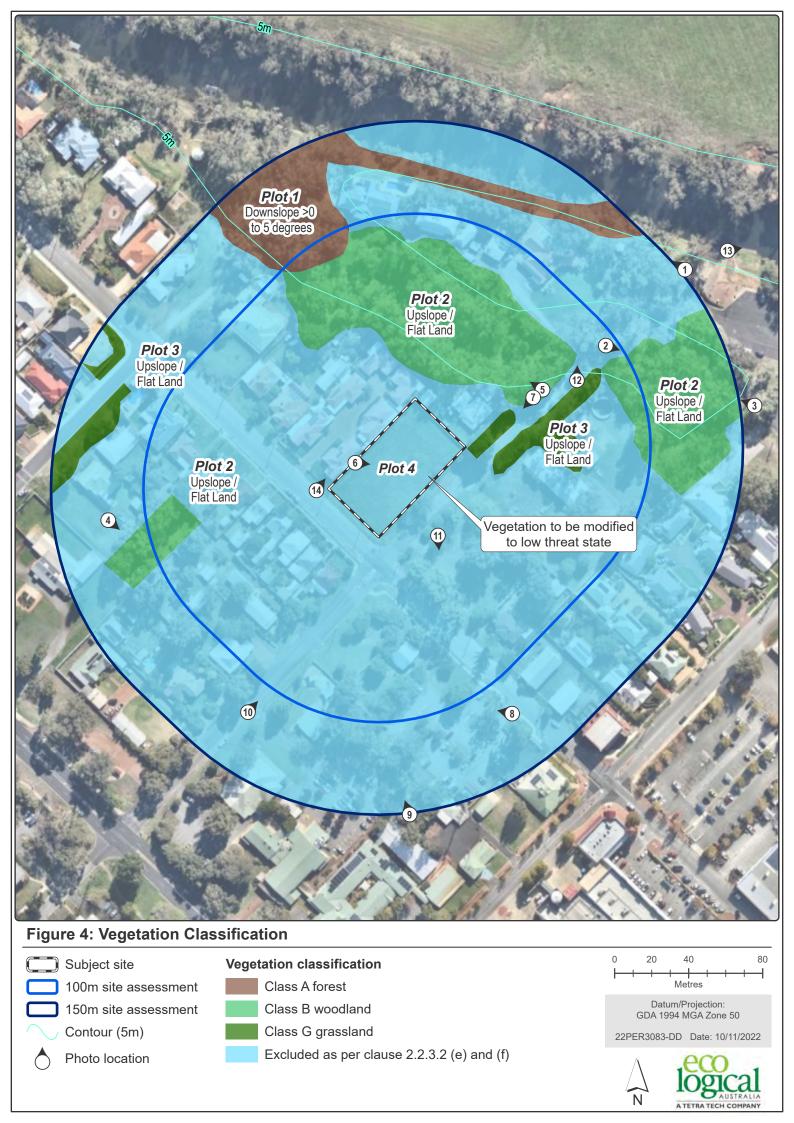
The classified vegetation and effective slope for the proposed development from each of the identified vegetation plots are identified below in Table 1 and Figure 4.

Table 1: Classified vegetation as per AS 3959: 2018

Plot	Vegetation Classification	Effective Slope
1	Class A Forest	Downslope >0 to 5 degrees
2	Class B Woodland	All upslopes and flat land (0 degrees)
3	Class G Grassland	All upslopes and flat land (0 degrees)
4	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)	-

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

Note – Plot 3 Class B Woodland has a different structure to Plot 1 Class A Forest. The Class B Woodland areas have significantly thinner canopy cover and an absence of a midstorey. In addition, the understorey is almost completely comprised of exotic grasses, thereby warranting a Class B Woodland classification.



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 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				
Piot	vegetation classification	Effective Stope	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5	
1	Class A Forest	Downslope >0 to 5 degrees	<20	20-<27	27-<37	37-<50	50-<100	
2	Class B Woodland	All upslopes and flat land (0 degrees)	<10	10-<14	14-<20	20-<29	29-<100	
3	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6-<8	8-<12	12-<17	17-<50	
4	Excluded AS 3959: 2018 2.2.3.2 (e) & (f)	-	N	o separation	distances req	uired – BAL-L	ow	

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 (Table 3).

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. However, given the vulnerable nature of the development ELA recommend that the childcare centre is constructed to BAL-12.5 standards.

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

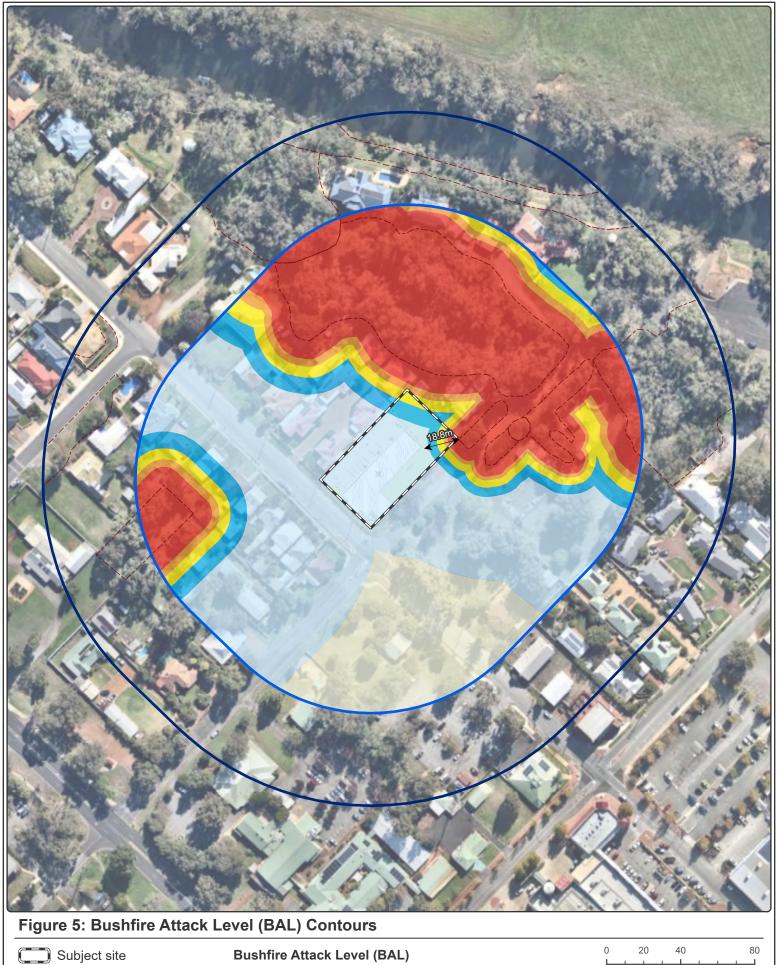
Proposed building	Plot most affecting BAL rating	Separation Distance (m)	BAL Rating
Childcare Centre	Plot 2	18.8	BAL-12.5

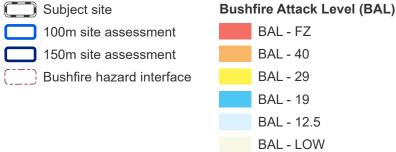
2.3 Identification of issues arising from the BAL assessment

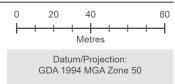
Should there be any changes in development design or vegetation/hazard extent that requires a modified bushfire management response, then the above BAL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP.

The Asset Protection Zone (APZ) area depicted in Figure 6 will be maintained in accordance with Standards for Asset Protection Zones (Appendix B). All other landscaping within the subject site will continue to be maintained to a low threat state as per Clause 2.2.3.2 (f) AS 3959: 2018.

A small portion of the outdoor play area is subject to BAL-FZ/BAL-40. As these BAL ratings do not apply to the proposed childcare centre building, their existence on the site does not preclude development. In fact, it is good design practice to site open space/play areas between assets and bushfire hazards and is even depicted as such on page 65 the Guidelines (regarding siting and design of development). There is nothing in the Guidelines or SPP 3.7 that precludes play areas from being located in areas subject to BAL-FZ and BAL-40.







22PER3083-DD Date: 11/11/2022





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	\boxtimes			The proposed childcare centre building within the subject site will be located in an area subject to BAL rating of ≤BAL-12.5 (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 has an APZ sufficient for the potential radiant heat flux to not exceed 29kW/m² and will be managed in accordance with the requirements of 'Standards for Asset Protection Zones' (WAPC 2021; Appendix B). The APZ can be contained within the boundaries of the lot or managed in perpetuity in a low fuel state. The proposed development is considered to be compliant with A2.1.
Element 3: Vehicular access A3.1 Public Roads				The subject site is accessed via existing public roads, with entrance into subject site coming off James Street. 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 requirements in accordance with the Guidelines are detailed in (Appendix C).

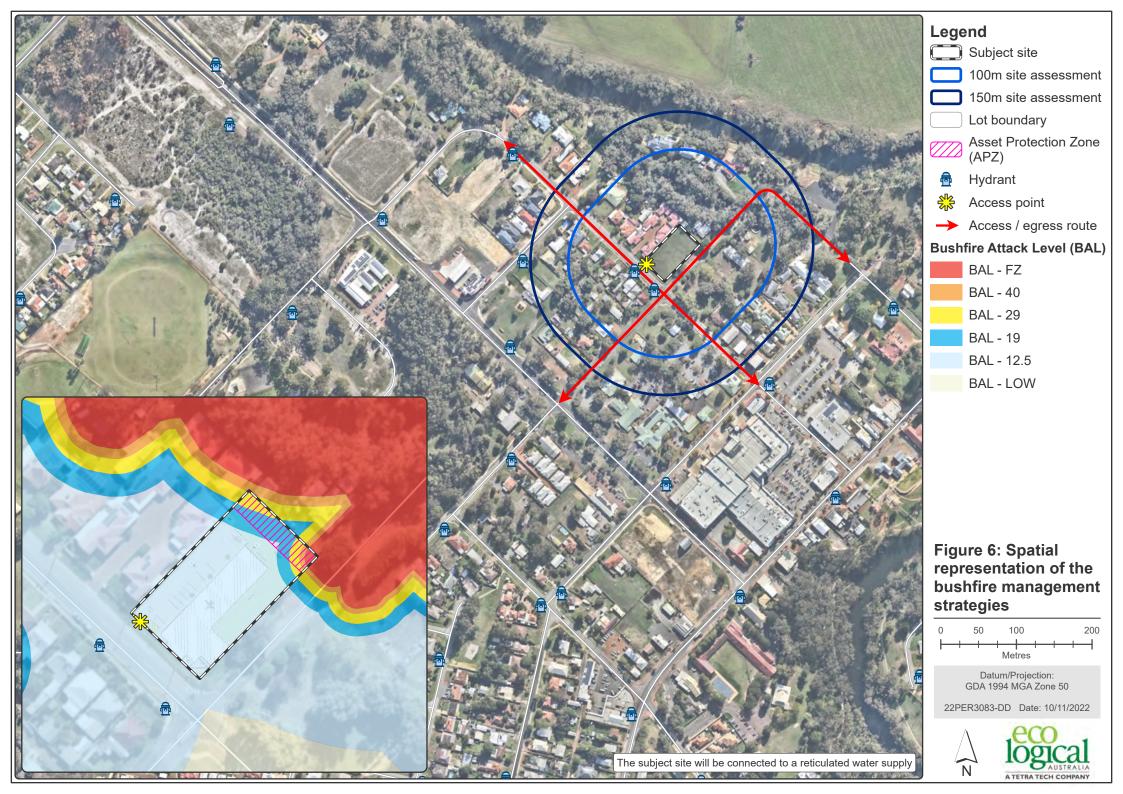
AS	PS	N/A	Comment
			No public roads are proposed as a part of this Development Application.
			The proposed development is considered to be compliant with A3.1.
			Three access routes from the subject site to three suitable destinations are available via the existing public road network (Figure 6). James Street extends east and west away from the subject site, before connecting up with either Pinjarra Road which continues west or South Western Highway which continues to the north and south. Please 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.
			No emergency access ways are required or proposed.
			This acceptable solution does not apply to Development Applications.
			This acceptable solution does not apply to Development Applications.
			This acceptable solution does not apply to Development Applications.
			No battle-axe properties are proposed as a part of this development.
			The subject site is serviced by reticulated water and the site is accessed by a public road where speed limit is not greater than 70 km/hr. The internal road (treated as a private driveway) is less than 70 m in length. Given the above, this acceptable solution does not apply to the Development Application.
		\boxtimes	This acceptable solution does not apply to Development Applications.
\boxtimes			Existing reticulated water is present within the area. ELA assume the hydrants and the existing reticulated water supply present in the area 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. The proposed development is considered to be compliant with A4.2.

Bushfire Protection Criteria	AS	PS	N/A	Comment		
Element 5: Vulnerable tourism land uses			\boxtimes	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 2019) details evacuation procedures in the event of a bushfire.

All landscaping areas within the subject site will be maintained in accordance with Standards for Asset Protection Zones (Appendix B) or low threat standard as per clause 2.2.3.2(f) of AS 3959: 2018.



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 issue of Titles					
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	Implement and maintain APZ as depicted in Figure 6.	Developer			
3	Extend reticulated water supply to appropriate areas	Developer			
4	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			
5	Construct internal road network as per plan in Figure 6.	Developer			
6	Implement the Bushfire Emergency Evacuation Plan (BEEP) prior to occupancy (Section 3.2).	Owners			
Prior to occupancy					
7	Ensure all APZs are implemented and maintained.	Developer			
8	Maintain landscaping within the subject site to a low threat state.	Developer			
Ongoing management					
9	Maintain APZs to the standard in the Guidelines	Owners			
10	Maintain landscaping within the subject site to a low threat state.	Owners			
11	Review the BEEP prepared for the development on an annual basis and updated details/procedures as required	Owners			

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

Department of Fire and Emergency Services (DFES), 2021, *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.

Shire of Murray (SoM), 2021, Firebreak Notice, [Online], available from: 2021-2022-Firebreak-Notice.pdf

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

Photo Point 1

Classified vegetation within this plot is comprised of trees up to 30 m tall with foliage cover of 30% to 70%. Understorey is comprised is of multi-tiered layers of vegetation consisting of a mixture of grasses, shrubs and juvenile trees.

Slope under this vegetation was assessed as downslope >0 to 5 degrees.

South East Elevation 305'NW (T) - 32.624976, 115.874207 ±8 m. A-18 m

Plot 2 Classification or Exclusion Clause

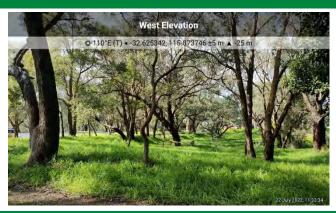
Photo Point 2

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with 10% to 30% foliage cover. Midstorey is absent and understorey is comprised of grasses.

Slope under this vegetation was assessed as upslope/flat land.

Class B Woodland

Class A Forest



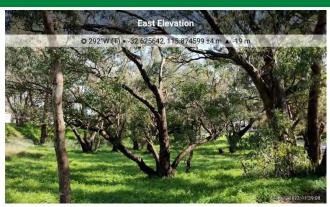
Plot 2 Classification or Exclusion Clause

Photo Point 3

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with 10% to 30% foliage cover. Midstorey is absent and understorey is comprised of grasses.

Slope under this vegetation was assessed as upslope/flat land.

Class B Woodland



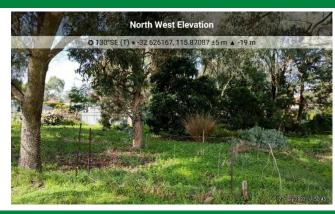
Plot 2 Classification or Exclusion Clause

Photo Point 4

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with 10% to 30% foliage cover. Midstorey is absent and understorey is comprised of grasses and isolated low shrubs.

Slope under this vegetation was assessed as upslope/flat land.

Class B Woodland



Plot 2 Classification or Exclusion Clause

Photo Point 5

Classified vegetation within this plot is comprised of trees 10 m to 30 m tall with 10% to 30% foliage cover. Midstorey is absent and understorey is comprised of grasses.

Slope under this vegetation was assessed as upslope/flat land.

Class B Woodland



Plot 3 Classification or Exclusion Clause

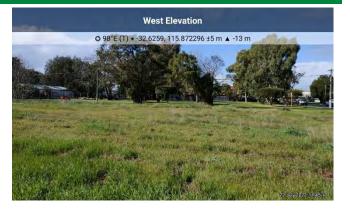
Photo Point 6

Classified vegetation within this plot is comprised of grasses located on the subject site at the time of assessment.

Slope under this vegetation was assessed as upslope/flat land.

Note: Vegetation within the subject site will be cleared for development and thus excludable under clause 2.2.3.2 (e) & (f) of AS 3959: 2018 post-development as depicted in Figure 4 and Figure 5.

Class G Grassland



Plot 3 Classification or Exclusion Clause

Photo Point 7

Classified vegetation within this plot is comprised of grasses.

Slope under this vegetation was assessed as upslope/flat land.

Note: Grasses within Plot 3 are shown in the far right portion (north of Forrest Street) and central foreground (South of Forrest Street) portion of Photo ID 7. Vegetation shown within the far left of Photo ID 7 is a strip of vegetation along a boundary that adjoins the grassland which has been conservatively classified and included within Plot 3 (as opposed to being considered a windbreak).

Class G Grassland



Plot 4 Classification or Exclusion Clause

Photo Point 8

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of nonvegetated areas such as carparks as well as low threat landscaping areas.

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)



Plot 4 Classification or Exclusion Clause

Photo Point 9

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of non-vegetated areas such as footpaths as well as low threat landscaping areas.

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)



Plot 4 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 10

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of nonvegetated areas such as roads and footpaths as well as low threat areas that are road verge vegetation and managed gardens.



Plot 4 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (f)

Photo Point 11

This area has been excluded under 2.2.3.2 (e) of AS 3959: 2018. The area comprises of low threat vegetation that is managed parkland.

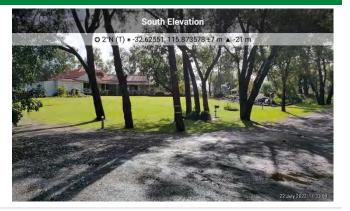


Plot 4 Classification or Exclusion Clause

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)

Photo Point 12

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of nonvegetated areas such as driveways, roads and residential housing as well as low threat vegetation that is managed residential yards.



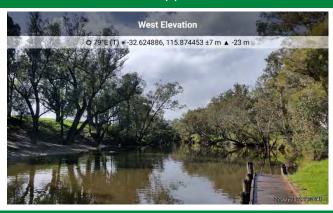
Plot 4 Classification or Exclusion Clause

ot i classification of Exclasion class

Photo Point 13

This area has been excluded under 2.2.3.2 (e) of AS 3959: 2018. The area comprises of non-vegetated area that is a river.

Excluded AS 3959: 2018 2.2.3.2 (e)

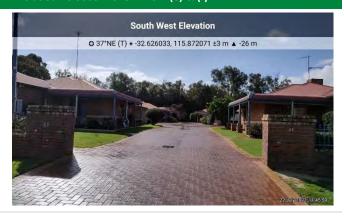


Plot 4 Classification or Exclusion Clause

Photo Point 14

This area has been excluded under 2.2.3.2 (e) and (f) of AS 3959: 2018. The area comprises of nonvegetated areas such as driveways, roads and residential housing as well as low threat vegetation that is managed residential yards.

Excluded AS 3959: 2018 2.2.3.2 (e) & (f)



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 are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used
 - Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors
 - Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare
 - Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from
 all elevations of the building, branches at maturity should not touch or overhang the building,
 lower branches should be removed to a height of 2 metres above the ground and or surface
 vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to
 at least 5 metres apart as to not form a continuous canopy (Figure 7).

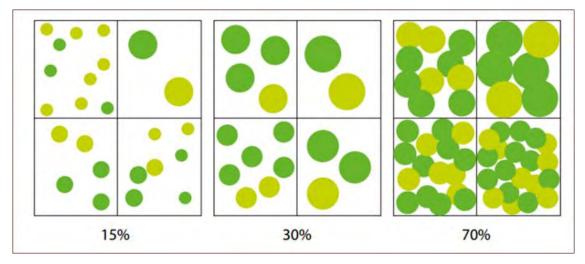


Figure 7: Illustrated tree canopy cover projection (WAPC 2017)

- Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees
- Ground covers (<0.5 metres in height): can be planted under trees but must be properly
 maintained to remove dead plant material and any parts within 2 metres of a structure, but 3
 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater
 than 0.5 metres in height are to be treated as shrubs
- Grass: should be managed to maintain a height of 100 millimetres or less.

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.

Appendix C - Vehicular access technical requirements (WAPC 2017)

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)		1	.5	
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	

 $^{^{\}rm 1}\,\text{To}$ 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





From: <u>Crowson, Chris</u>
To: <u>Cherryll Oldham</u>

Subject: ATCO Response - LM22673 Development Assessment Panel Application - Proposed Child Day Care Centre -

Lot 99 (25) James Street Pinjarra

Date: Wednesday, 14 September 2022 11:38:33 AM

Attachments: <u>image001.jpg</u>

LM22673 - James Street Pinjarra.pdf

Good morning

Re: Development Assessment Panel Application - Proposed Child Day Care Centre - Lot 99 (25) James Street Pinjarra

ATCO Reference: LM22673

Thank you for your recent correspondence regarding the above mentioned Development Assessment Panel Application - Proposed Child Day Care Centre - Lot 99 (25) James Street Pinjarra

ATCO Gas Australia (ATCO) has no objection to the proposed application, based on the information and plan provided.

Advice notes:

- Anyone proposing to carry out construction or excavation works must contact 'Before You Dig Australia' (www.byda.com.au) to determine the location of buried gas infrastructure. Refer to ATCO document AGA-O&M-PR24- Additional Information for Working Around Gas Infrastructure https://www.atco.com/en-au/for-home/natural-gas/wa-gas-network/working-around-gas.html
- 2. Proposed construction and excavation works need to be managed in accordance with the ATCO document Additional Information for Working Around Gas Infrastructure AGA-O&M-PR24 https://www.atco.com/en-au/for-home/natural-gas/wa-gas-network/working-around-gas.html

Please accept this email as ATCO's written response.

Should you have any queries regarding the information above, please contact us on 13 13 56 or eservices@atco.com.

Kind regards

Chris Crowson

Land Management Coordinator ATCO, Gas Division, Australia

E. chris.crowson@atco.com

A. 81 Prinsep Road, Jandakot, Western Australia, 6164 atco.com.au Facebook Twitter LinkedIn



We pay respect to their cultures, Elders past and present, and in the spirit of reconciliation, we commit to working together for our shared future.

From: Cherryll Oldham < Cherryll O@murray.wa.gov.au>

Sent: Monday, 12 September 2022 4:27 PM **To:** Engineering Services <eservices@atco.com>

Subject: LM22673 Development Assessment Panel Application - Proposed Child Day Care Centre

- Lot 99 (25) James Street Pinjarra

Caution – This email is from an external source. If you are concerned about this message, please forward it to spam@atco.com for analysis.

I'm using Mimecast to share large files with you. Please see the attached instructions.

Dear Sir /Madam

The Shire has received a Development Assessment Panel Application for a Proposed Child Day Care Centre – Lot 99 (25) James Street Pinjarra.

Please review the attached document and provide comment to the Shire.

Should you have any questions, please contact me.

Thank you Cherryll

The information transmitted is intended only for the addressee and may contain confidential, proprietary and/or privileged material. Any unauthorized review, distribution or other use of or the taking of any action in reliance upon this information is prohibited. If you receive this in error, please contact the sender and delete or destroy this message and any copies.

From: <u>Charles Sabato</u>
To: <u>Cherryll Oldham</u>

Subject: Proposed Child Care Centre - Lot 99 (25) James Street, Pinjarra

Date: Thursday, 29 September 2022 8:57:02 AM

Attachments: <u>image001.png</u>

image002.png image003.png image004.png image005.png image006.jpg James.pdf

Thank you for your email dated September 20, 2022 regarding the above development application. The Corporation offers the following comments.

Water Supply

Water supply services are provided to the subject site.

It should be noted that a larger reticulation main (100AC) is situated off James St and should be considered for a water supply connection to meet demands, rather than the 58AC off Forrest Street (see plan).

Wastewater

Wastewater services are provided to the subject land to accommodate the development.

General

The developer is required to fund the full cost of protecting, modifying or upgrading any of the existing infrastructure which may be affected by the proposed development.

The applicant should be advised that this proposal will require approval by our Building Services section prior to commencement of works. Fees may be required to be paid prior to approval being issued.

For further information about building applications, the developer should follow this link: https://www.watercorporation.com.au/home/builders-and-developers/building/lodging-a-building-application

If the application is retrospective, approval by our Building Services section is still required.

The information provided above is subject to review and may change. If the proposal has not proceeded within the next 6 months, please contact us to confirm that this information is still valid.

Kind Regards,

Chas Sabato

Senior Planner - Land Planning Development Services Available Monday, Tuesday & Thursday

- E Charles.Sabato@watercorporation.com.au
- T (08) 9420 2105



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Your Ref:

Our Ref: F-AA-01672 D-AA-22/422747 Contact: Phill Oorjitham 9222 2000

Mr Dean Unsworth Chief Executive Officer Shire of Murray PO Box 21 PINJARRA WA 6849

Attention: Cherryll Oldham

Via email: mailbag@murray.wa.gov.au

Dear Mr Unsworth

PROPOSED CHILD DAY CARE CENTRE ON LOT 99 (25) JAMES STREET, PINJARRA

Thank you for your email of 12 September 2022, requesting comments from the Department of Health (DOH) on the above proposal.

The DOH provides the following comment:

1. Water Supply and Wastewater Disposal

In relation to the management of wastewater, the proposed site is located where deep sewerage is available. Therefore, the DOH supports the proposal subject to all future developments being connected to deep sewerage in accordance with the Government Sewerage Policy 2019 objectives.

Potable water must be of the quality as specified under the *Australian Drinking Water Quality Guidelines 2011*.

2. Public Health Impacts

The document provides no information on the land's historical land use. We advise the proponent to consider historical use and ensure that any prior use did not involve potential contaminating activities.

Although the site has not been classified on the Department of Water and Environmental Regulation's (DWER) Contaminated Sites database (*Contaminated Sites Act 2003*), and does not appear on DWER's public access database, it may be subject to other important classifications not recorded on that database. The proponent should obtain a Basic Summary of Records relating to the land and its surroundings to complete their assessment of the site's suitability for sensitive land uses.

https://www.der.wa.gov.au/images/documents/your-environment/contaminated-sites/Forms/Form 2 June 2020.pdf.

3. Food Act Requirements

All food related areas (kitchen, preparation areas, etc.) to comply with the provisions of the Food Act 2008 and related code, regulations and guidelines. Details available for download from: https://ww2.health.wa.gov.au/Articles/S_T/Starting-a-food-business-in-WA

Should you have any queries or require further information please contact Phill Oorjitham on 9222 2000 or eh.eSubmissions@health.wa.gov.au

Yours sincerely

Dr Michael Lindsay

EXECUTIVE DIRECTOR

ENVIRONMENTAL HEALTH DIRECTORATE

6 October 2022

From: Samantha Tofts
To: Cherryll Oldham

Subject: RE: Att: Cesar Rodrigues - Development Assessment Panel Application - proposed Child Day Care Centre Lot

99 (25) James Street, Pinjarra

Date: Wednesday, 19 October 2022 1:14:44 PM

Attachments: <u>image001.jpg</u>

Hi Cherryll,

Thank you for your email. Sorry for the delay in getting back to you, everything has been extremely busy.

A review of the Register of Places and Objects as well as the Department of Planning, Lands and Heritage (DPLH) Aboriginal Heritage database concludes that location of the proposed Child Day Care Centre, at Lot 99 (25) James Street, Pinjarra, does not affect any reported Aboriginal heritage sites or places.

Therefore, based on the information held by DPLH, no approvals under the *Aboriginal Heritage Act 1972* (AHA) are required.

Please note that future queries regarding Aboriginal heritage can be forwarded directly to <u>AboriginalHeritage@dplh.wa.gov.au</u> for processing.

Please don't hesitate to contact me if required.

Kind regards

Sam

Samantha Tofts | Assistant Manager, Aboriginal Heritage Conservation | Heritage and Property Services 140 William Street, Perth WA 6000 6551 8131

www.dplh.wa.gov.au



We're on a Roll, WA

Keep doing 3 simple things

Wear a mask when necessary | Update your vaccinations | Wash hands regularly.

The Department acknowledges the Aboriginal people of Western Australia as the traditional custodians of this land and we pay our respects to their Elders, past and present.

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From: Cherryll Oldham < Cherryll O@murray.wa.gov.au>

Sent: Monday, 12 September 2022 4:03 PM

To: info <info@dplh.wa.gov.au>

Subject: Att: Cesar Rodrigues - Development Assessment Panel Application - proposed Child Day

Care Centre Lot 99 (25) James Street, Pinjarra

I'm using Mimecast to share large files with you. Please see the attached instructions.

Dear Sir

The Shire has received a Development Assessment Panel application for a proposed child day care centre on Lot 99 (25) Pinjarra Road, Pinjarra.

Please review the attached document and provide comment to the Shire.

Should you have any questions, or concerns, please contact me.

Thank you

Cherryll

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Our Ref: D25799 Your Ref: P231/2022

Cherryll Oldham
Shire of Murray
CherryllO@murray.wa.gov.au

Dear Ms Oldham

RE: VULNERABLE LAND USE - LOT 99 (25) JAMES STREET, PINJARRA - CHILD DAY CARE CENTRE - DEVELOPMENT APPLICATION

I refer to your email dated 12 September 2022 regarding the submission of a Bushfire Management Plan (BMP) (Version V2), prepared by Eco Logical Australia and dated 7 September 2022, for the above development application.

This advice relates only to *State Planning Policy 3.7: Planning in Bushfire Prone Areas* (SPP 3.7) and the *Guidelines for Planning in Bushfire Prone Areas* (Guidelines). It is the responsibility of the proponent to ensure the proposal complies with relevant planning policies and building regulations where necessary. This advice does not exempt the applicant/proponent from obtaining approvals that apply to the proposal including planning, building, health or any other approvals required by a relevant authority under written laws.

1. Policy Measure 6.5 a) (ii) Preparation of a BAL contour map

Issue	Assessment	Action
Vegetation classification	Evidence to support the exclusion of nearby vacant lots and road reserve as managed to low threat in accordance with AS3959 is required. Specifically: Vacant lots – e.g. plot 4 photo point 11. It is unclear how this area is to be managed to low threat in perpetuity. Road reserves – there are a number of road reserves (particularly Forrest St) that appear to be unmanaged. The decision maker should be satisfied that there is an enforceable mechanism in place to ensure the road verges in the area are managed to low threat in perpetuity. Alternatively, the vegetation should be classified	Clarification required. The decision maker to be satisfied with the vegetation exclusions and vegetation management proposed.
	as per AS3959, or the resultant BAL ratings may be inaccurate.	
Vegetation classification	Vegetation plot 2 is denoted as Class G Grassland on the Vegetation Classification Map (Figure 4) and Plot 3 is Class B Woodland.	Modification to the BMP is required.

Vegetation classification	However, the photographic evidence in Appendix A for Plot 2 is supporting Class B Woodland and the photos supporting Plot 3 are Class G Grassland. The Vegetation Classification Map and the photographic evidence should align. Photo point 6 is being used to support a Class G Grassland classification but this area has been excluded on the Vegetation Classification Map. On the Vegetation Classification Map, photo point 7 shows grassland with excluded vegetation on both sides, however the photograph appears to show a vegetated area abutting the grassland. Vegetation plot 3 (as shown on the Vegetation Classification Map) cannot be substantiated as Class B Woodland with the limited information	Modification to the BMP is required.
	and photographic evidence available. The foliage cover appears to be greater than 30% and photo ID's 2 – 5 do not support the Class B Woodland classification. The BMP should detail specifically how the Class B Woodland classification was derived as opposed to Class A Forest.	
	If unsubstantiated, the vegetation classification should be revised to consider the vegetation at maturity as per AS3959:2018, or the resultant BAL ratings may be inaccurate.	

2. Policy Measure 6.5 c) Compliance with the Bushfire Protection Criteria

Element	Assessment	Action
Location, and Siting & Design	A1.1 & A2.1 – not demonstrated The BAL ratings cannot be validated for the reasons outlined in the above table.	Modification to the BMP required.
	The development footprint should clearly include the eaves / overhanging roof area as they are supported by external posts (sees notes within section 2.2.4 of AS3959). The development footprint is not clearly shown on the BAL Contour Map but should not be impacted by BAL-29.	

3. AS3959 construction standards including clause 3.2.3 adjacent structures

Issue	Assessment	Action
Building Construction Standards	Class 9 buildings should be afforded significant protection from the impacts of a bushfire due to being occupied by people who may need assistance, or be unable, to evacuate the building in the event of a bushfire. In response, revised provisions in the National Construction Code are proposed for implementation in 2022.	Comment only.

The proposed changes include but are not limited to; minimum separation between buildings, and separation from allotment boundaries, carparking areas and hazards. It is suggested the decision maker consider applying the proposed higher construction and design standards to the proposed development.	
Further information regarding the proposed changes can be found here: https://consultation.abcb.gov.au/engagement/ncc-2022-public-comment-draft/supporting_documents/NCC2022VolumeOnePCD.pdf	

4. Policy Measure 6.6.1 Vulnerable land uses

Issue	Assessment	Action
Bushfire	The referral has included a 'Bushfire Emergency Evacuation	Comment
Emergency	<i>Plan'</i> for the purposes of addressing the policy requirements.	only.
Evacuation	Consideration should be given to the Guidelines Section 5.5.4	
Plan	'Developing a Bushfire Emergency Evacuation Plan'. This	
(BEEP)	contains detail regarding what should be included in a BEEP	
	and will ensure the appropriate content is detailed when	
	finalising the BEEP to the satisfaction of the Shire.	

DFES Built Environment Branch comments

As the proposed building is to be Class 9b and to be used for childcare, plans will need to be provided to DFES Built Environment Branch for assessment as required by Regulation 18B of the *Building Regulations 2012* (as amended). As the total floor area of the proposed building exceeds 500m2, unless compliant fire separation in accordance with *BCA Clause C2.7(b)* is demonstrated, hydrant and hose reel coverage will need to be provided to this building. The pressure/flow requirements of these will be based upon DFES Operational Requirements (and based on the relevant specifications of *AS2419.1-2005*).

DFES Built Environment Branch notes that a hydrant design solely in accordance with Water Corporation Design Standard 63 will not necessarily comply with either AS2419.1-2005 or DFES Operational Requirements and so compliance of such a design should not be assumed on that basis. If the hydraulic performance of the hydrant service proposed to serve this site cannot be demonstrated to meet DFES Operational Requirements, then on-site pumps and tanks may be required. Furthermore, any such system is for the dedicated protection of the building only and cannot be considered to meet any requirements related to bushfire protection.

Recommendation - not supported modifications required

It is critical the bushfire management measures within the BMP are refined to ensure they are accurate and can be implemented to reduce the vulnerability of the development to bushfire. The proposed development is not supported for the following reasons:

1. The development design has not demonstrated compliance to –

Element 1: Location, and

Element 2: Siting and Design and

Element 4: Water.

As this planning decision is to be made by a Development Assessment Panel please forward notification of the decision to DFES for our records.

If you require further information, please contact Michelle Gray – Land Use Planning Officer on telephone number 9395 9561.

Yours sincerely

Naomi Mynott DIRECTOR LAND USE PLANNING

31 October 2022







Our Ref: D25799 Your Ref: P231/2022

Cherryll Oldham Shire of Murray CherryllO@murray.wa.gov.au

Dear Ms Oldham

RE: VULNERABLE LAND USE - LOT 99 (25) JAMES STREET, PINJARRA - CHILD DAY CARE CENTRE - DEVELOPMENT APPLICATION

I refer to your email dated 16 November 2022 regarding the submission of a revised Bushfire Management Plan (BMP) (Version 4), prepared by Eco Logical Australia and dated 16 November 2022, for the above development application.

This advice relates only to *State Planning Policy 3.7: Planning in Bushfire Prone Areas* (SPP 3.7) and the *Guidelines for Planning in Bushfire Prone Areas* (Guidelines). It is the responsibility of the proponent to ensure the proposal complies with relevant planning policies and building regulations where necessary. This advice does not exempt the applicant/proponent from obtaining approvals that apply to the proposal including planning, building, health or any other approvals required by a relevant authority under written laws.

Assessment

• It is acknowledged that the BMP has been amended to provide some evidence of vegetation management and exclusions and to provide an updated building design.

1. Policy Measure 6.5 a) (ii) Preparation of a BAL contour map

Issue	Assessment	Action
Vegetation classification	Evidence to support the exclusion of the road reserves as managed to low threat in accordance with AS3959 is required. There are a number of road reserves	Clarification required.
	(particularly Forrest St) that appear to be unmanaged. The decision maker should be satisfied that there is an enforceable mechanism in place to ensure the road verges in the area are managed to low threat in perpetuity.	The decision maker to be satisfied with the vegetation exclusions and vegetation
	Alternatively, the vegetation should be classified as per AS3959, or the resultant BAL ratings may be inaccurate.	management proposed.
Vegetation classification	Vegetation plot 2 (as shown on the Vegetation Classification Map) cannot be substantiated as Class B Woodland with the information and photographic evidence available. The foliage cover appears to be greater than 30% and photo ID's 2 – 5 do not support the Class B Woodland classification.	Modification to the BMP is required.

The BMP should detail specifically how the Class B Woodland classification was derived as opposed to Class A Forest.	
If unsubstantiated, the vegetation classification should be revised to consider the vegetation at maturity as per AS3959:2018, or the resultant BAL ratings may be inaccurate.	
It is acknowledged that the classification of Plot 3 as Forest is unlikely to affect the BAL rating of the building.	

2. Policy Measure 6.5 c) Compliance with the Bushfire Protection Criteria

Element	Assessment	Action
Location, and Siting & Design	A1.1 & A2.1 – not demonstrated The BAL ratings cannot be validated for the reason(s) outlined in the above table. As per previous advice, the development footprint shown in the BMP appears to reflect the ground floor plan and should clearly include the eaves / overhanging roof area as they are supported by external posts (sees notes within section 2.2.4 of AS3959). It is noted that the additional footprint would not be likely to be impacted by BAL-29.	Modification to the BMP required.

3. AS3959 construction standards including clause 3.2.3 adjacent structures

Issue	Assessment	Action
Building Construction Standards	Previous comments provided remain valid as advice regarding Class 9 buildings, which should be afforded significant protection from the impacts of a bushfire due to being occupied by people who may need assistance, or be unable, to evacuate the building in the event of a bushfire.	Comment only.

4. Policy Measure 6.6.1 Vulnerable land uses

Issue	Assessment	Action
Bushfire	The referral has included a 'Bushfire Emergency Evacuation	Comment
Emergency	<i>Plan'</i> for the purposes of addressing the policy requirements.	only.
Evacuation	Consideration should be given to the Guidelines Section 5.5.4	
Plan	'Developing a Bushfire Emergency Evacuation Plan'. This	
(BEEP)	contains detail regarding what should be included in a BEEP	
	and will ensure the appropriate content is detailed when	
	finalising the BEEP to the satisfaction of the Shire.	

Recommendation – supported subject to modifications

The development application and the BMP have adequately identified issues arising from the bushfire risk assessment and considered how compliance with the bushfire protection criteria can be achieved. However, modifications to the BMP are necessary to ensure it accurately identifies the bushfire risk and necessary mitigation measures. As these modifications will not

affect the development design, these modifications can be undertaken without further referral to DFES.

The required modifications are listed in the table(s) above.

If you require further information, please contact me on telephone number 9395 9561.

Yours sincerely

Naomi Mynott DIRCTOR LAND USE PLANNING

09 December 2022

Design review report and recommendations; Pinjarra childcare centre, 99 James Street, Pinjarra

Summary

Whilst the proposed use in this location, along with the overall height, scale and bulk of the building, are appropriate, the proposed design has several shortcomings that cannot be supported from a design perspective. The areas which require significant improvement are in respect to:

- the building's relationship to the street
- the building's response to the prevailing residential character of the locality
- the lack of consideration to matters of sustainability
- the levels of amenity that provided to children, staff, visitors and passers-by.

In addition, there are a range of other matters that either need further consideration or further information to be provided, most noticeably around the landscape design and pedestrian access.

Ultimately, the design presents as an 'anywhere' building that wouldn't look out of place in any recent suburban development in Australia. The design does not present as one that feels like it belongs to Pinjarra - a unique, historical and characterful regional town - which it should.

Malcolm Mackay – Director Mackay Urbandesign 18th November 2022

Design	quality	evaluation	ì

Principle 1

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Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.

- a) The use is appropriate in the context of the frame of a town centre, however such a use in such a location warrants a pedestrian-orientated response rather than a suburban carorientated response.
- b) The use of face brick and timber cladding is an appropriate material response to the context, but the use of a low-pitched dark-coloured roof is not.
- c) Insufficient context and character analysis has been undertaken to adequately justify the design approach.
- d) The design is an inadequate response to either the existing character of the place or the intended future character that might be anticipated by an RAC0 coding and does not negotiate between either.
- e) Given the lack of local planning guidance for the RAC0 zone and given the Planning Regulations state "provide for a range of non-residential uses, which are compatible with and complementary to residential development", it is reasonable to expect a strong and readily identifiable response to the character of the surrounding context.
- f) The skillion roof form is out of character in this place no evidence has been provided as to a skillion roof being a predominant form in the locality

g) The response to an important street corner facing the town centre is poor, with a negative building return, blank walls and mesh screens to back-of-house areas. h) The car park is highly visible from the street and will detract from the streetscape. The car park should be screened at the street front with visually permeable fencing and/or landscape. Recommendations 1. Undertake a context and character analysis of the locality. 2. Review the roof form in the context of the locality. 3. Consider a stronger, more engaging, and interactive response to the street corner. 4. Provide additional screening and/or landscape to the car Principle 2 Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a Landscape quality broader ecological context. a) The inclusion of a preliminary landscape plan is good. b) However, no detail, even indicative, has been provided on the playscape area, which comprises most of the landscaped area. Elements such as trees, large play equipment, shade structures and landscaping visible through the visually permeable fencing will have a significant bearing on the streetscape qualities. c) Whilst the inclusion of trees in the car park is good, the locations may not be viable given the lack of open soil, the clash between the tree canopies and the building and building canopies, and the risk of damage from cars. d) The mulch band in the verge is a poor design outcome. If this a response to a Shire of Murray policy, then the policy should be reviewed. Otherwise, the mulch should be replaced with a footpath to provide pedestrian functionality and amenity. e) Given that Forrest Road is effectively a road to nowhere, the use of embayed parking is nonsensical - cars could park on street and allow more verge to be landscaped. f) Consideration should be given to providing further street trees for pedestrian amenity and an attractive streetscape. g) The car park appears to be an unrelenting sheet of bitumen, with no consideration given to the use of textured materials to provide relief. Recommendations 1. Include, at least, a conceptual playscape design, 2. Consider more textured hardscape treatments. 3. Review the verge treatment including more street trees, a more legible pedestrian path and better connectivity, and deletion of the embayed parking and 2m mulch strip.

Principle 3 Built form and scale	Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future
	character of the local area.
	 a) Height and bulk is not an issue. b) Single storey development is appropriate in response to the prevailing character of the residential area. c) The skillion roof form is alien to the prevailing character of the locality and should be reviewed. d) The placement of the bin-store as a partial termination of the vista along the car park from the street is poorly considered and should be better integrated into the building and/or landscape design. e) The architectural response to the street corner is poor. The built form should do more to celebrate and interact with the corner and streetscape. Recommendations 1. Review the roof form in the context of the locality. 2. Consider a stronger and more engaging and interactive response to the street corner. 3. Review the prominence of the bin store location and design.
Principle 4 Functionality and build quality	Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life-cycle.
	 a) The overall childcare functions are generally clear and logical. b) No consideration has been given to the placement of AC condenser equipment, which should not be visible from the street or reduce the amenity of outdoor spaces. c) The bin store is remote from the kitchen, which will be the largest waste generator. d) Given the bike parking is more likely to be used by staff and, therefore, longer term parking, it should be weather protected. e) The arrival lobby is small, which may be an issue at peak pick-up and drop-off times. f) The cot room appears to be relatively small compared to the capacity of the centre. g) Whilst timber cladding is appropriate, 'timber-look' cladding lacks architectural integrity and, therefore, a 'weatherboard' look might be better achieved with a painted finish rather than pretend timber. Recommendations 1. Identify AC condenser unit locations. 2. Review the bin store location and design 3. Review the bike parking location and design to provide shade and shelter. 4. Review the capacity of the cot room and the entry lobby. 5. Review the material selection for greater architectural integrity.

Principle 5 Sustainability	Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.
	 a) No Environmentally Sustainable Design report has been provided. b) The use of dark-coloured roofing and cladding will increase heat loads. c) No PV panels are indicated on the roof - childcare centres operating during the day are ideally suited to including PV panels. d) Consideration should be given to including skylights to reduce dependency on artificial light in deep and/or internal rooms. e) There is limited opportunity for cross ventilation of individual rooms to reduce dependency on air-conditioning. f) There is no reference to other ESD measures such as recycled or recyclable materials, appliance efficiencies, water-storage or reuse or reticulation or water-efficient reticulation. g) Given the efficiency of walking, there is no pedestrian path connectivity to the James Street footpath and, via that, to the town centre. h) There is minimal shading through trees to reduce the ambient temperature of the micro-climate. i) There is minimal glazing with a northern aspect and most of what there is to a corridor with limited shading provided by high eaves. Recommendations Comprehensively review all sustainability considerations and identify commitments over aspirations.
Principle 6 Amenity	Good design optimises internal and external amenity for occupants, visitors, and neighbours, providing environments that are comfortable, productive and healthy.
	 a) The internal cot room has no openings for ventilation and natural light, which is an unacceptable amenity outcome for a habitable room. b) The staff courtyard is poorly located in that it provides limited privacy and a poor design response to the street. c) The staff courtyard has no direct relationship with the staff room and, instead, is accessed via the drying yard. d) The high-level window to the staff room offers no outlook. e) The lack of eaves on the south-eastern elevation adjacent to the street will tip large volumes of rainwater onto pedestrians on the footpath. f) The kitchen has no access to natural light and ventilation. g) The footpath between the car park and the building appears to be unreasonably narrow especially given the likelihood of pram/buggy use. h) Placing the bin store against a neighbouring property is a poor amenity outcome.

	Recommendations 1. Review the use of internal habitable spaces with no natural light or ventilation. 2. Review the location and design of the staff courtyard. 3. Review the use of high-level windows to enable more outlook. 4. Review the eaves design adjacent to the footpath. 5. Review footpath widths. 6. Review the bin store location.
Principle 7 Legibility	Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.
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Principle 8 Safety	Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
	 a) It is common practice to include a second secure line in the form of an entry courtyard to prevent children from escaping into the car park or street. Given the proximity of the secure line to the car park and street, this may be a safety issue. b) Consider introducing wheel stops to the car bays to stop vehicles overhanging what is already a narrow footpath. c) There is only limited opportunity for passive surveillance of the street from the staff-occupied areas. d) There is no after-hours security to the site. Recommendations 1. Review the provision of secure lines/gates to prevent children escaping from the lobby. 2. Consider including car wheel stops. 3. Review the extent of passive surveillance opportunities of the adjacent streets. 4. Consider gating the car park for after-hours security.
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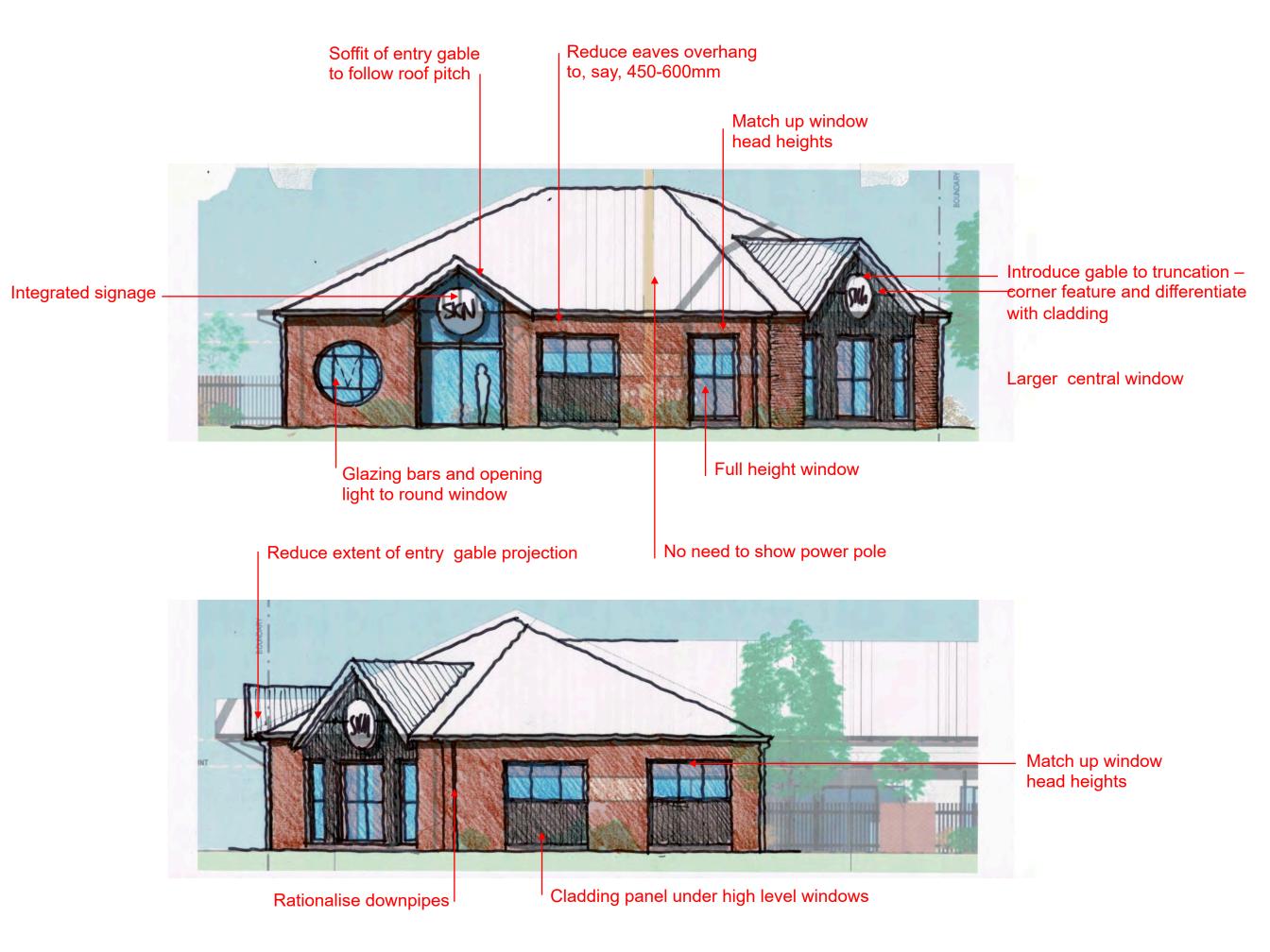
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CHERITON DRIVE, 7 (LOT 2495) CARRAMAR – PROPOSED CHILD CARE CENTRE AND RECREATION CENTRE

Form 1 – Responsible Authority Report

(Regulation 12)

DAP Name:	Metro Outer JDAP
Local Government Area:	City of Wanneroo
Applicant:	Planning Solutions
Owner:	Carramar Village Fund Pty Ltd
Value of Development:	\$3 million
	☐ Mandatory (Regulation 5)
	☑ Opt In (Regulation 6)
Responsible Authority:	City of Wanneroo
Authorising Officer:	Greg Bowering, Manager Approval Services
LG Reference:	DA2022/1047
DAP File No:	DAP/22/2320
Application Received Date: 7 September 2022	
Report Due Date:	23 December 2022
Application Statutory Process	90 Days plus an additional 28 day agreed
Timeframe:	extension
Attachment(s):	Development Plans
	2. Location Plan
	3. Summary of Submissions
	4. Transport Noise Assessment
	5. Initial Development Plans submitted to
	the Design Review Panel
	6. Design Review Panel Meeting Minutes
	7. Parking Assessment Report
In the Decreasible Authorities	8. Transport Impact Statement
Is the Responsible Authority	□Yes Complete Responsible Authority
Recommendation the same as the	□ N/A Recommendation section
Officer Recommendation?	
	□ No Complete Responsible Authority
	and Officer Recommendation
	sections



Responsible Authority Recommendation

That the Metro Outer JDAP resolves to:

1. **Approve** DAP Application reference DAP/22/2320 and accompanying plans provided in **Attachment 1** in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the *Planning and Development (Local Planning Schemes) Regulations 2015*, and the provisions of the City of Wanneroo District Planning Scheme No. 2, subject to the following conditions:

Conditions

- 1. Pursuant to clause 26 of the Metropolitan Region Scheme, this approval is deemed to be an approval under clause 24(1) of the Metropolitan Region Scheme.
- 2. This decision constitutes planning approval only and is valid for a period of four years from the date of approval. If the subject development is not substantially commenced within the specified period, the approval lapses and will be of no further effect.
- 3. The use of the premises is to be **Child Care Centre** and **Recreation Centre** as defined in the City of Wanneroo's District Planning Scheme No.2 as follows:
 - "Child Care Centre: means premises used for the daily or occasional care of children in accordance with the Community Services (Child Care) Regulations 1988."
 - "Recreation Centre: means any premises used for physical exercise of sports including swimming, ice skating, ten pin bowling, cricket, tennis, squash, soccer, billiards and similar activities."

A change of use from that outlined above may require the approval of the City.

- 4. A revised detailed landscaping plan is to be provided for the subject site which must include a minimum of 8% soft landscaping and additional shade trees within the reconfigured parking areas. The landscaping plan must detail the plant species, densities, confirmation on mulch details, planting locations, and shade trees. The landscaping plan must be lodged for approval by the City prior to lodging a building permit. Planting and installation must be in accordance with the approved landscaping and reticulation plans and completed prior to occupation of the development and maintained thereafter, to the satisfaction of the City.
- 5. The Child Care Centre shall accommodate a maximum of **82 children** and **16 staff** are permitted on the premises at any one time.
- 6. The Recreation Centre shall accommodate a maximum of **30 persons** (including staff) on the premises at any one time.
- 7. The hours of operation of the Child Care Centre is to be between the hours of 6:30am and 6:30pm Monday to Friday (excluding public holidays).



- 8. Construction of the development must be undertaken in accordance with the recommendations as contained within the Transport Noise Assessment prepared by Lloyd George Acoustics dated 10 June 2022. Written certification must be provided from the acoustic consultant confirming all noise attenuation measures contained within the Environmental Noise Assessment are incorporated into the building design prior to the occupancy of the development.
- 9. Parking areas, driveways and points of ingress and egress must be designed and constructed in accordance with the Australian Standard for Offstreet Carparking (AS 2890) and shall be drained, sealed and marked to the satisfaction of the City prior to the occupation of the development, and maintained thereafter to the satisfaction of the City.
- 10. The parking areas and associated access indicated on the approved plans must not be used for the purpose of storage or obstructed in any way at any time, without the prior approval of the City.
- 11. The car bays as annotated on the approved plans must be modified or redesigned to comply with AS2890.
- 12. All signage is to be contained entirely within the allotment.
- 13. All waste must be stored within the designated bin enclosure and collected from the site by a private contractor at the cost of the owner/occupier.
- 14. The development must be finished in accordance with the approved Schedule of Materials Selections (including materials, colour schemes and details) prior to the use or occupation of the development.
- 15. Lighting must be installed to pathways and car parking areas, be designed in accordance with the Australian Standards for the Control of Obtrusive Effects of Outdoor Lighting (AS4282) and must be internally directed to not overspill into nearby lots. All floodlights must be oriented and hooded to eliminate disturbance to occupants on the surrounding properties.
- 16. Detailed civil engineering drawings and specifications for works within the public road reserve (footpath) must be lodged with the City and approved in writing prior to the commencement of construction works. Construction works are to be undertaken in accordance with the approved development application, engineering drawings and specifications at the cost of the proponent, and to the satisfaction of the City. All works must be completed prior to occupation.
- 17. A construction management plan must be submitted for approval to the City prior to an application for a building permit being made. The plan is to detail how construction of the development will be managed to minimise disruption to adjoining landowners. The plan must address the following:
 - a. The delivery times for materials and equipment to the site;
 - b. Storage of materials and the location and type of equipment on site;
 - c. Adequate measures to be implemented during construction to minimise any adverse impacts caused by sand drift and dust from the site;
 - d. Parking arrangements for contractors and sub-contractors;
 - e. Construction times;
 - f. Measures to minimise noise impacts on surrounding residents; and



g. Any other matter required by the City.

The construction management plan is to be submitted to and approved by the City prior to the commencement of any development.

- 18. A mural design for the eastern elevation is to be submitted to the City prior to occupation. The mural must be completed within six months of the commencement of the approved uses, and thereafter maintained to the satisfaction of the City.
- 19. The mural must be treated with a non-sacrificial anti-graffiti coating immediately following its completion.

ADVICE:

1. In relation to the requirement for a revised detailed landscaping plan, the revised landscape plan needs to detail the extent of soft landscaping in the Child Care Centre's outdoor play area.

Details: outline of development application

Region Scheme	Metropolitan Region Scheme
Region Scheme - Zone	Urban
Local Planning Scheme	District Planning Scheme No.2
Local Planning Scheme - Zone	Centre zone
Structure Plan	Agreed Structure Plan No.21B: Carramar South
	 Tapping North
Structure Plan Zone	Centre zone
Structure Plan - Land Use	Commercial
Designation	
Use Class and permissibility:	Child Care Centre – Discretionary use
	Recreation Centre – Discretionary use
Lot Size:	2.0793ha
Existing Land Use:	Shop (Specialty Retail and Supermarket)
State Heritage Register	No
Design Review	□ N/A
	☑ Local Design Review Panel
	□ State Design Review Panel
	☐ Other
Bushfire Prone Area	No
Swan River Trust Area	No

Proposal:

The proposal is for a Child Care Centre and Recreation Centre comprising the following:

- A two storey mixed use building incorporating a ground floor Child Care Centre and upper floor Recreation Centre;
- The Child Care Centre will accommodate up to 82 children and 16 staff at any one time;



- The Child Care Centre will operate between the hours of 6:30am to 6:30pm Monday to Friday;
- The Recreation Centre will operate 24 hours a day seven days a week;
- The proposed development will result in the reconfiguration of the car parking area abutting Joondalup Drive and the addition of two car bays located at the northern eastern corner of the subject site; and
- Five wall signs are proposed across three elevations.

Both Child Care Centre and Recreation Centre land uses are discretionary ('D') use on the subject lot in accordance with land use permissibility designated under Agreed Structure Plan No.21B: Carramar South – Tapping North (ASP 21B).

The development plans for consideration are included in **Attachment 1**.

Proposed Land Use	Child Care Centre and Recreation Centre
Proposed Net Lettable Area	Child Care Centre – 638.1m ²
	Recreation Centre – 418.9m ²
Proposed No. Storeys	Two storey
Proposed No. Dwellings	N/A

Background:

The proposed development is located in the south western corner of Lot 2495 (7) Cheriton Drive, Carramar (subject site). The site is zoned Centre under the City's District Planning Scheme No.2 (DPS 2) and Agreed Structure Plan No.21B Carramar South — Tapping North (ASP 21B). In accordance with ASP 21B the land use permissibility of the Centre zone shall be in accordance with the permissibility of the Commercial zone of DPS 2.

The subject site is identified as a neighbourhood centre in ASP 21B and is bound by Joondalup Drive to the south, Rawlinna Parkway to the west, the Carramar Community Centre to the north and Cheriton Drive to the east. ASP 21B identifies that the neighbourhood centre has a maximum retail net lettable area (NLA) of 5,500m². The proposed development doesn't increase the extent of retail net lettable area on the property. Access onto the property is only available from Rawlinna Parkway and Cheriton Drive or via the Carramar Community Centre. The subject development is located in close proximity to Houghton Park (20 metres) and Carramar Primary School (150 metres) which are located to the west of the subject development. The existing shopping centre on the subject site encompasses approximately 20 tenancies including a variety of land uses such as a Recreation Centre, Restaurants, Shops, a Pharmacy and Medical Centre. The centre is a single floor but incorporates a larger wall height to enable a range of uses to be accommodated on the property.

Additionally, there are existing low density residential properties and a tavern and restaurant development which is located 120 metres east of the proposed development.

A location plan of the subject site is included as Attachment 2.

Legislation and Policy:

Legislation



Metropolitan Region Scheme (MRS) City of Wanneroo District Planning Scheme No.2 (DPS 2)

State Government Policies

State Planning Policy 7.0 Design of the Built Environment (SPP 7.0) WAPC Planning Bulletin 72/2009: Child Care Centre (Planning Bulletin 72/2009) State Planning Policy 5.4 Road and Rail Noise (SPP 5.4)

Structure Plans/Activity Centre Plans

Agreed Structure Plan No. 21B: Carramar South – Tapping North - Part 3.2 (ASP 21B)

Local Policies

Local Planning Policy 2.3 Child Care Centres (LPP 2.3) Local Planning Policy 4.6 Advertising Signs (LPP 4.6)

Consultation:

Public Consultation

The application was advertised for a period of 14 days commencing on 29 September 2022 until 13 October 2022. Advertising was undertaken by way of letters to surrounding landowners/occupiers within approximately 100 metres of the subject site, a sign was erected on site, a notice placed in the local newspaper and details of the proposal being made available on the City's website.

During the public consultation period, 45 submissions were received, with 44 submissions objecting to the proposal and one providing comment on the proposal.

The key concerns raised in the submissions include:

- Reduction in the extent of on-site parking:
- Increases in traffic congestion both on the surrounding road network and in the internal parking areas;
- Duplication of services within the locality;
- High vacancy rates in the existing shopping centre complex;
- Location of the Child Care Centre in relation to Joondalup Drive; and
- The impacts of the proposed development upon the existing businesses within the existing Shopping Centre.

A summary of the submissions received and the City's response is included as **Attachment 3**.

Referrals/consultation with Government/Service Agencies

Department of Planning, Lands and Heritage

The subject site abuts Joondalup Drive, which is classified as a Category 1 Other Regional Road. The application was referred to the Department of Planning, Lands and Heritage (DPLH) for comment in accordance with the Instrument of Delegation under the *Planning and Development Act 2005* (DEL2022/3). DPLH supported the proposal subject to the implementation of the noise mitigation treatments as specified



in the Transport Noise Assessment (TNA) (**Attachment 4**) prepared by Lloyd George Acoustics dated 10 June 2022. As such, it is recommended that a condition be imposed requiring that the recommendations of the TNA be implemented.

Design Review Panel Advice

Prior to the application being submitted for assessment, the proposal was referred to the City's Design Review Panel (DRP) for review. A number of strengths were identified such as the built form and scale, opportunities for passive surveillance, the colours, materials and textures palette and the contemporary aesthetic. The DRP also identified a number of design opportunities. The initial development plans submitted for design review are included as **Attachment 5**. A summary of the key comments raised by the DRP in relation to the initial set of plans is included below and the full Design Review Panel Meeting Minutes can be reviewed in **Attachment 6**.

Following DRP comments, the applicant submitted modified plans (**Attachment 1**) in response to the comments. A summary of the modifications are included in the table below:

Design Review Panel comment	Design Response
The proposal in its current master plan layout deviates from the current design guidelines by not allowing for a direct pedestrian link along the southern retail frontage.	The proposed development has been repositioned to the south western corner of the property to provide a direct interface to Joondalup Drive and Rawlinna Parkway. A new pedestrian connection is located to the south western corner of the subject site and creates a series of new pedestrian crossing points internally between Joondalup Drive and the existing shopping centre. This new pedestrian link replaces the existing pedestrian connection via the south eastern corner of the subject site to the shopping centre. The new pedestrian connection is consistent with the pedestrian connection identified within the Urban Design Elements Plan contained within ASP 21B.
Proposed development is situated remotely from Joondalup Drive and does not achieve adequate streetscape engagement.	As detailed above, the development has been repositioned to the south western corner of the property to provide a direct interface to Joondalup Drive and Rawlinna Parkway. In addition, modifications have been made to the fencing associated with the outdoor play area to create an improved level of streetscape engagement. Furthermore, the materials, colours and textures throughout the development have been further developed from the initial plans submitted to the DRP. Legibility of the entry point of the Child Care Centre has also been improved providing direct interface with the existing shopping centre and using signage to define the entry point.
Pergola structures proposed may not provide adequate shade to the Child Care Centre.	The City acknowledges that the incorporation of pergolas may not provide adequate shade. Given the orientation of the site, the two storey building will provide adequate shade to pedestrians in the mid to late afternoon. Notwithstanding this, the operator may in future lodge a subsequent development application for the installation of



Consider incorporating openable windows to all habitable rooms including cot rooms and sleeping rooms.	shade structures over the outdoor play areas. Given this, the comment is considered to have been addressed. The City encourages the use of openable windows where possible to provide natural ventilation to the development. Irrespective of this, the development will need to be constructed in accordance with the relevant requirements of the National Construction Codes (NCC) which considers ventilation.
Consider appointing a landscape professional to assist with the development of a landscape proposal.	A landscaping plan has been provided for the subject site. However, the extent of soft landscaping is unable to be determined given that the soft landscaping associated with the outdoor play area is subject to detailed design. As such, it is recommended that a condition be imposed requiring a detailed landscaping plan be provided that incorporates a minimum of 8% soft landscaping and additional shade trees within the modified parking areas to the satisfaction of the City.
Consider appointing an ESD professional to assist with developing a coherent and effective ESD design strategy.	The applicant has not engaged a sustainability consultant. Notwithstanding this, the proposal will be required to comply with the relevant requirements of the NCC.

In light of the above, the DRP comments discussed above are considered to have been adequately addressed as a result of the revised development plans or through the imposition of conditions.

Planning Assessment:

An assessment has been undertaken against the provisions of LPP 2.3, LPP 4.6, DPS 2 and ASP 21B. The following matters have been identified as key considerations for the determination of this application:

- Compatibility with the Centre zone and locality;
- Setbacks and Built Form;
- Car Parking;
- Landscaping; and
- Traffic and Safety.

These matters are outlined and discussed below.

Compatibility with the Centre Zone and locality

Submissions were received in reference to the compatibility of the Child Care Centre and Recreation Centre in the locality.

The objective of the Centre zone under ASP 21B is:

a) To encourage commercial and associated community infrastructure development of a high standard.

Child Care Centre and Recreation Centre are both identified as discretionary uses and are compatible uses within the Centre zone given that the land use permissibility is in

accordance with the Commercial zone under Table 1 of DPS 2. These are both land uses which contribute to the diversity of activity operating within the neighbourhood centre. The proposal incorporates a two storey built form with a concealed roof design which is in keeping with the existing shopping centre which is of a comparable roof height. The proposal incorporates a variety of colours, materials and textures and incorporates openings addressing Joondalup Drive and Rawlinna Parkway. This creates visual interest within the streetscape. The development is highly accessible by the community and has a direct pedestrian connection to an existing bus stand along Joondalup Drive. Irrespective of the development's close proximity to Joondalup Drive, the TNA provided by the applicant demonstrates that the proposal is capable of complying with SPP 5.4 and as such is appropriately located.

In light of the above, the proposed Child Care Centre and Recreation Centre satisfies the objective of the Centre zone under ASP 21B and the development has been designed to a high standard.

Setbacks

The two storey Child Care Centre and Recreation Centre development incorporates a 5.87 metre setback to the Joondalup Drive frontage in lieu of 6 metres. The small setback variation of 13cm is supported for the following reasons:

- The setback variation is considered to be minor in nature due to the small portion of the development that protrudes into the required setback and as such is not considered to adversely impact the streetscape;
- The proposed setback to the Joondalup Drive boundary provides passive surveillance of the street;
- The two storey portion of the development that protrudes into the street setback is not considered to impose excessive building bulk as a result of the mature vegetation which has been identified to be retained within the subject site and fronts Joondalup Drive.
- The varying verge width may provide the impression that the development is setback further from the street boundary.

Built Form

ASP 21B incorporates design criteria for the development of the neighbourhood centre. The key themes of the built form provisions are discussed below.

Built Form Provisions	Planner Comment
Built form compatibility between	The development incorporates a two storey built
existing residential and commercial land uses achieved	form that is comparable to the height of the
through appropriate setbacks,	existing shopping centre on the property. The eastern and western elevations each incorporate
height and scale. Development	a large amount of glazing on the ground and
exceeding single storey shall be	upper levels providing passive surveillance to
sited where compatible to	the public realm including the pedestrian
promote crime prevention through environmental design	underpass and Houghton Park to the west of the subject site. The southern elevation also
(CPTED) principles.	provides opportunities for surveillance of the bus
(** **==)	stop to the south of the development. The
	rectangular shape of the ground floor Child Care
	Centre minimises opportunities of concealment



With reference to the intersection of Joondalup Drive and Rawlinna Parkway, buildings located on street corners shall address both street frontages and shall demonstrate a high level of architectural merit and contribute visual amenity to the shopping

for patrons utilising the existing public transport infrastructure and provides safe access to the existing retail facilities.

The outdoor play area of the ground floor Child Care Centre directly abuts the Joondalup Drive and Rawlinna Parkway intersection. The fencing surrounding the Child Care Centre includes a range of vibrant colours which are in contrast to the cement, glass and metal cladding finish provided on the external walls of the development. The variety of colours within the fencing and the inclusion of pergolas within the outdoor play areas and the eastern elevation, soften the industrial colour pallet and materials incorporated into the external walls of the development. Furthermore, the eastern façade incorporates ribbed cladding and masonry feature walls further diversifying the range of materials and textures incorporated within the development. Given the above, the proposal has a high level of architectural merit and positively contributes to the amenity of the shopping centre.

As the mural illustrated as part of the development plans is indicative, it is recommended that a condition be imposed requiring the artwork to be approved by the City prior to its installation.

Built form shall promote wayfinding. Entryways to the centre and other key locations to be easily identified, visible, and easily recognisable from street level and on approach.

There is an existing pedestrian link connecting the south eastern corner of the property to the existing shopping centre. This application proposes to alter this pedestrian link to originate from the bus stop immediately south of the proposed development and create a new pedestrian connection with the existing shopping centre. This pedestrian link is consistent with the Urban Design Elements Plan as contained within Furthermore. the incorporates signage at the pedestrian level to indicate the respective entry points to the Child Care Centre and Recreation Centre improving legibility in the locality. It is recommended that a condition be imposed requiring engineering drawings be submitted and approved for the footpath connection between the lot and the existing footpath along Joondalup Drive.

Integration with adjoining development and open space utilising best practice Design Principles aimed at minimising opportunities for crime and antisocial behaviour. Encourage

The development has been located in the south western corner of the subject site providing a direct interface with the Rawlinna Parkway and Joondalup Drive streetscape. Furthermore as discussed above, the proposal incorporates a significant amount of glazing on the ground and



natural	surveillance	with	upper levels which provides opportunities for
particular	emphasis	on	passive surveillance of the pedestrian approach
Houghton Park and the western			from the underpass to the west.
pedestrian approach from the			·
underpass).		

Given the assessment above, the proposal satisfies the Design Objectives and Design Criteria as contained within ASP 21B.

Car Parking

A number of submissions raised concerns regarding the reduction of on-site parking and the implications that this may have upon the surrounding land uses.

Details of the onsite car parking provision are as follows:

- The existing shopping centre requires 328 parking bays. The centre was approved with a 40 bay shortfall;
- The proposal results in the loss of 10 existing bays due to the proposed development.
- Two proposed parking bays do not comply with AS2890 and must be either removed or redesigned. As such, these bays are not considered to contribute to the proposed onsite parking provision;
- The proposed Child Care Centre and Recreation Centre generates a demand for 37 bays;
- This results in a total parking requirement of 365 bays onsite with a total of 316 bays proposed; and
- A parking shortfall of 49 bays results from the proposed development.

In support of the application the applicant has provided a Parking Assessment Report (**Attachment 7**) which makes the following findings:

- Peak car park utilisation of 40% occurred on Thursday at 4:00pm and Saturday at 12:00pm with approximately 226 bays vacant on site;
- The parking survey accounts for seasonal variation as it was undertaken at the busiest period of the year. As such, the parking survey is considered to have captured higher than average parking demand;
- The proposal is expected to increase the peak occupancy to 52% leaving with a surplus of 172 bays;
- The proposed parking demand can easily be accommodated within the shopping centre car park and no reciprocal parking with the nearby car park at Rawlinna Parkway is required; and
- The post post-development peak parking occupancy is well below the desirable threshold of 85 to 90% parking occupancy.

The Parking Assessment Report provided in support of the application has demonstrated that sufficient parking is available on site to accommodate existing and the proposed development. Furthermore, volumes of traffic generated by the proposed development during peak periods are capable of being accommodated in close proximity to the subject development. In light of the reasons outlined above, the proposed onsite parking shortfall is supported as it is considered that the proposal will not result in parking problems occurring in the area.

Compliance with AS2890



The City has identified that a two of the bays proposed as part of the reconfiguration of the parking areas do not comply with AS2890. These are identified below and discussed below.

Parking bay at the south west corner associated with the disabled bay in front
of Child Care Centre is overlapping with the bay adjacent at 90 degrees. The
overlapped bay is to be removed and the shared area and disabled bay
relocated one bay to the north.

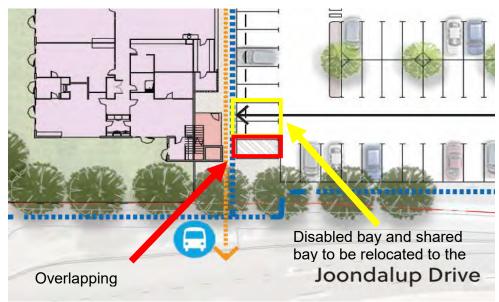


Figure 1 - Overlapped bay to be removed and shared and disabled bay to be relocated one bay further north.

 Parallel parking bay shown at the south east corner of the shopping centre north of the parking lot does not comply with the relevant Australian Standards (AS 2890.1 clause 2.4.4).

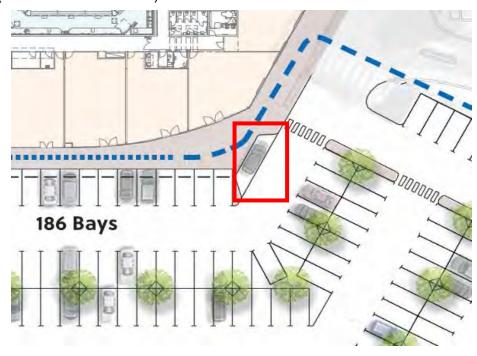




Figure 2 - Parallel parking bay to be removed.

light of the above, it is recommended that a condition be imposed requiring that the car parking bays are removed or redesigned to be constructed in accordance with AS2890. Irrespective of the removal or redesign of non-compliant parking bays on the subject site, the proposed onsite parking shortfall is supported as the development will not result in parking problems in the area.

Landscaping

In

DPS 2 Provisions	Required	Proposal
Clause 4.17.1 Minimum of 8% of the development site shall be landscaped.	8% or 1663.5m ² .	Insufficient information to undertake assessment
Clause 4.17.5 One shade tree to be planted for every four car parking bays.	79 required.	49 trees provided.

Clause 4.17.1 of DPS 2 requires a minimum of 8% of the development site to consist of soft landscaping. The proposed landscaping plan is incomplete as the outdoor play areas of the Child Care Centre is subject to further development at detailed design stage. Given this, the City is unable to determine whether the proposal complies with the 8% soft landscaping requirement.

Clause 4.17.5 of DPS 2 also requires that one shade tree is planted for every four car parking bays provided on the property. The development currently incorporates a total of 49 shade trees on the site in close proximity to parking areas. The reconfiguration of parking areas on the southern side of the property has resulted in a reduction in shade trees on the property. This is not supported as the proposal has opportunities to incorporate additional shade trees within the reconfigured parking areas, particularly within the existing Joondalup Drive and Cheriton Drive landscaping strips.

Given the above, it is recommended that a condition be imposed requiring a revised detailed landscaping plan be provided for the entire site showing the additional locations in which shade trees will be provided and incorporating a minimum of 8% soft landscaping on the site.

Traffic

A number of submissions raised concerns regarding the traffic generated from the development and its impact on safety and congestion.

In support of the proposal, a Transport impact Statement (TIS) was submitted (**Attachment 8**) with the application which included the following findings:

- Joondalup Drive is classified as a Distributor A and carries approximately 27,646 vehicles on a typical weekday. The morning and afternoon peaks are between 8:00am and 9:00am and 4:00pm and 5:00pm with traffic volumes of 2,204 vehicles per hour (vph) and 2,445vph respectively;
- The Child Care Centre and Recreation Centre is anticipated to generate approximately 438 vehicles per day (vpd) with 68 and 64 vehicles during the am and pm peak periods respectively;



- The number of vehicular trips generated is relatively low and would not have any significant impact upon the surrounding road network;
- Joondalup Drive is classified as a 'Distributor A' in the Main Roads WA Metropolitan Functional Road Hierarchy and operates under the speed limit of 70km/h;
- Child Care Centres operate differently to schools as their vehicular trips are spread over the peak periods rather than being concentrated within the peak hour; and
- The site also features good connectivity with the existing road, cyclist network and public transport coverage through the existing bus service operating along Joondalup Drive.

Joondalup Drive is classified as an Integrator A under Liveable Neighbourhoods and has an indicative traffic volume range of 15,000 to 35,000 vehicles per day. Given this, and the findings of the TIS, the City is of the view that sufficient capacity exists in the current road infrastructure to safely accommodate the increased volume of vehicular traffic associated with the proposed development. Furthermore, it is noted that DPLH have raised no concerns regarding the performance of Joondalup Drive and increased traffic as a result of the Child Care Centre.

Safety

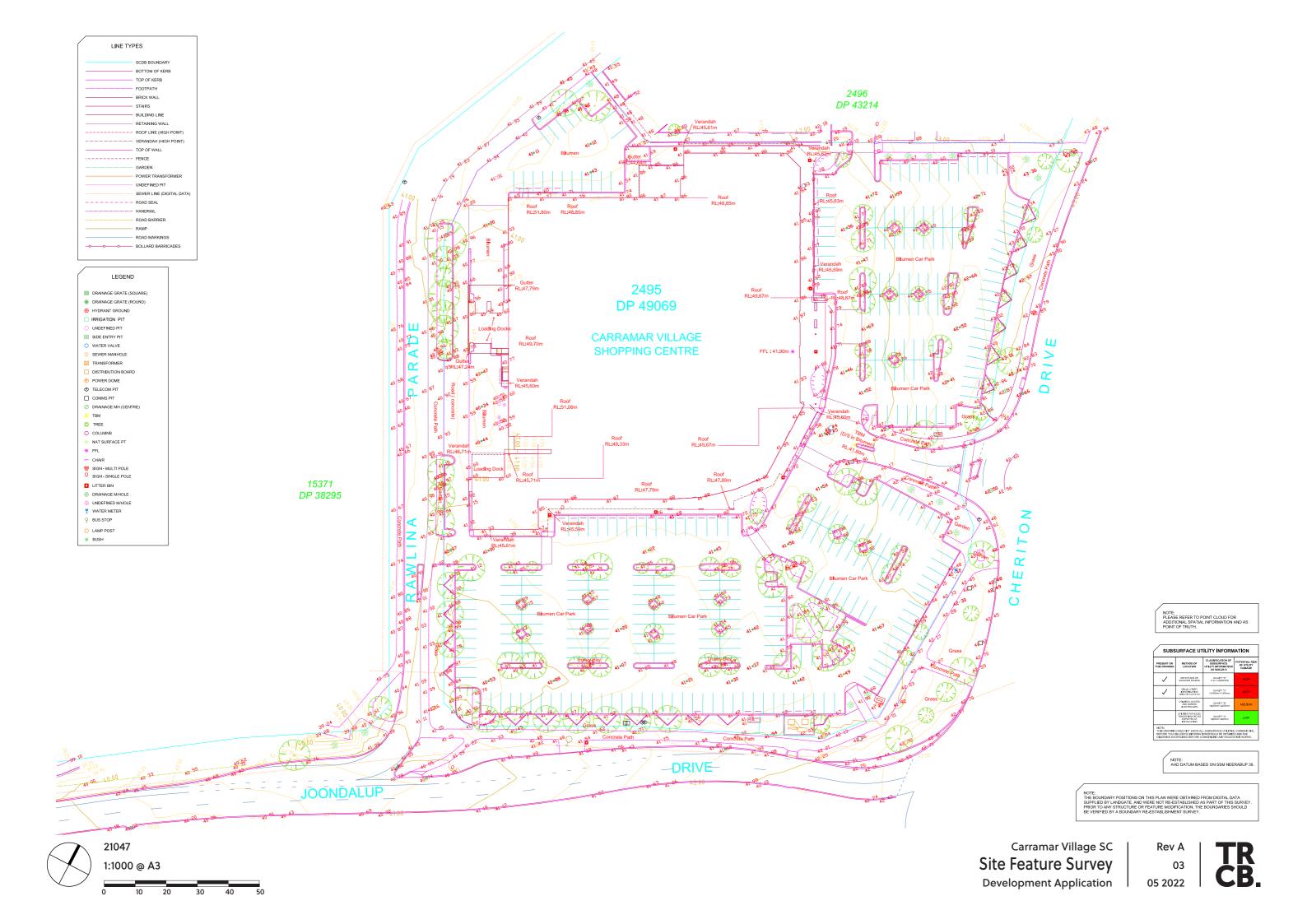
A number of submissions have raised concerns regarding the location of the Child Care Centre in proximity to Joondalup Drive.

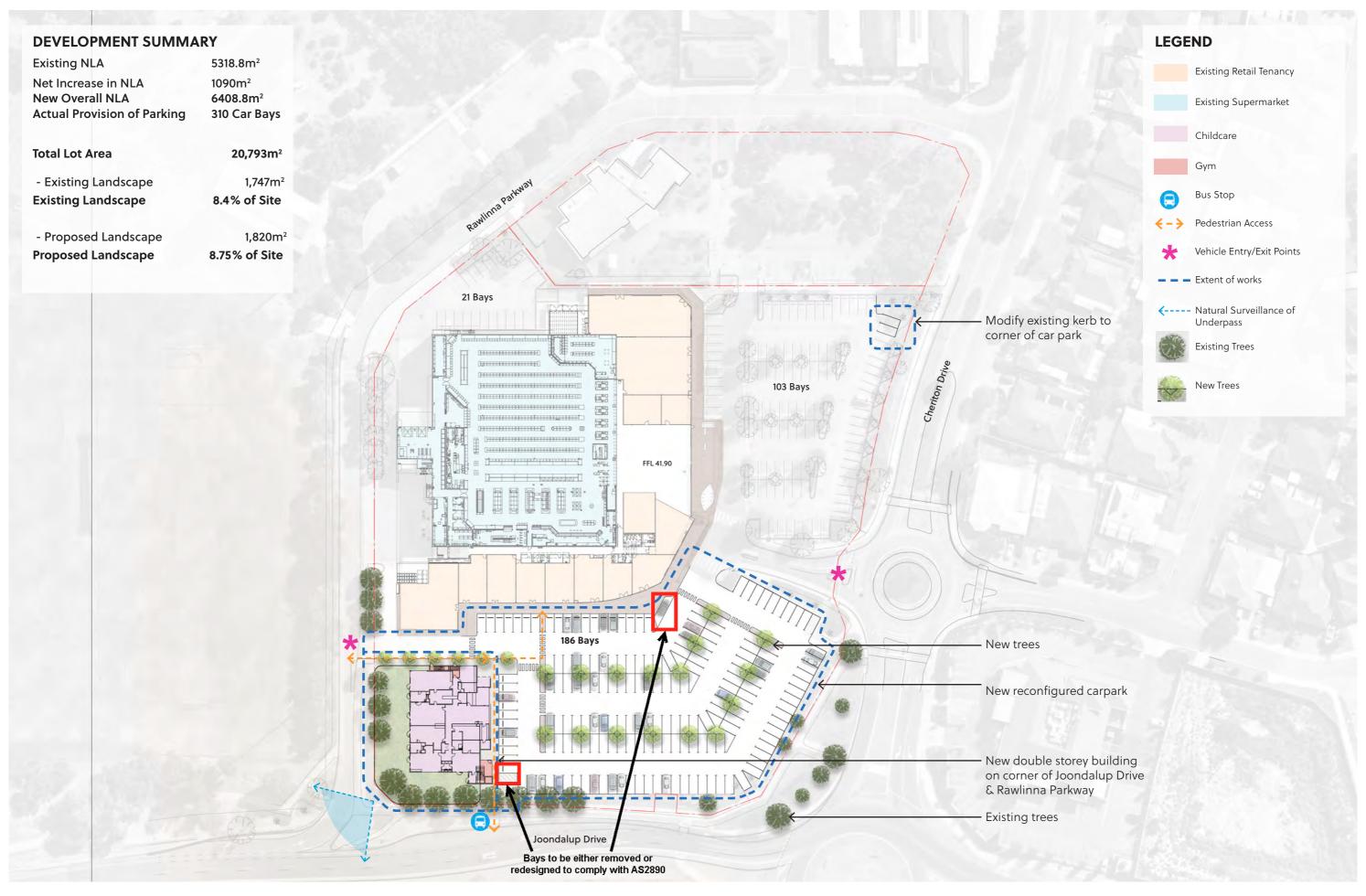
In 2020, road works were completed at the Joondalup Drive and Cheriton Drive intersection which is located 100 metres from the proposed development. These works replaced the existing 'T' intersection with a roundabout. The completed works assist vehicles exiting from Cheriton Drive to safely exit onto Joondalup Drive. The proposal also incorporates fencing along the western and southern elevations which will prevent children from gaining access to the Joondalup Drive and Rawlinna Parkway road reservations.

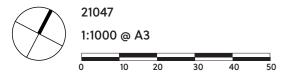
Conclusion:

The development application for a Child Care Centre and Recreation Centre at Lot 2495 (7) Cheriton Drive, Carramar has been assessed against the relevant legislation and planning requirements. The Child Care Centre and Recreation Centre is generally compliant with the relevant planning requirements and the applicant has made modifications to the built form of the development to address the DRP comments.

Whilst it is noted that a significant number of submitters identified parking issues as a cause for objection, the subject site is considered to accommodate an appropriate amount of onsite parking given the surrounding public parking facilities available in the locality. Given this, the development is considered to be a complimentary land use to the existing Commercial land uses accommodated on the site, and has incorporated a built form that is reflective of the character of the existing commercial development on the subject site. In light of the above, the City recommends that the proposed development be approved, subject to conditions.



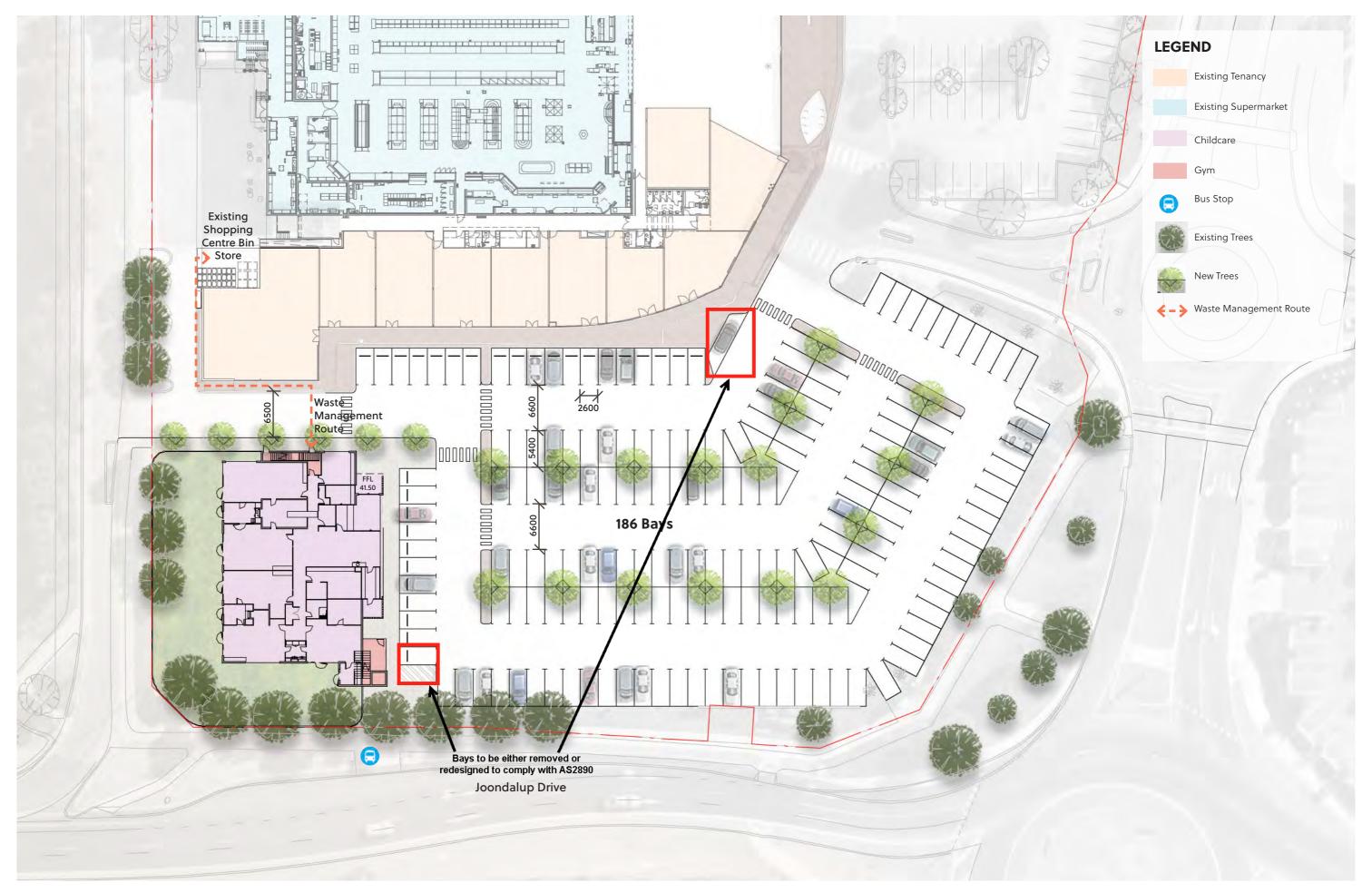


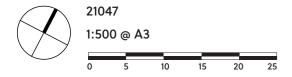


Carramar Village SC
Proposed Site Plan
Development Application

Rev A 05 05 2022

TR CB.

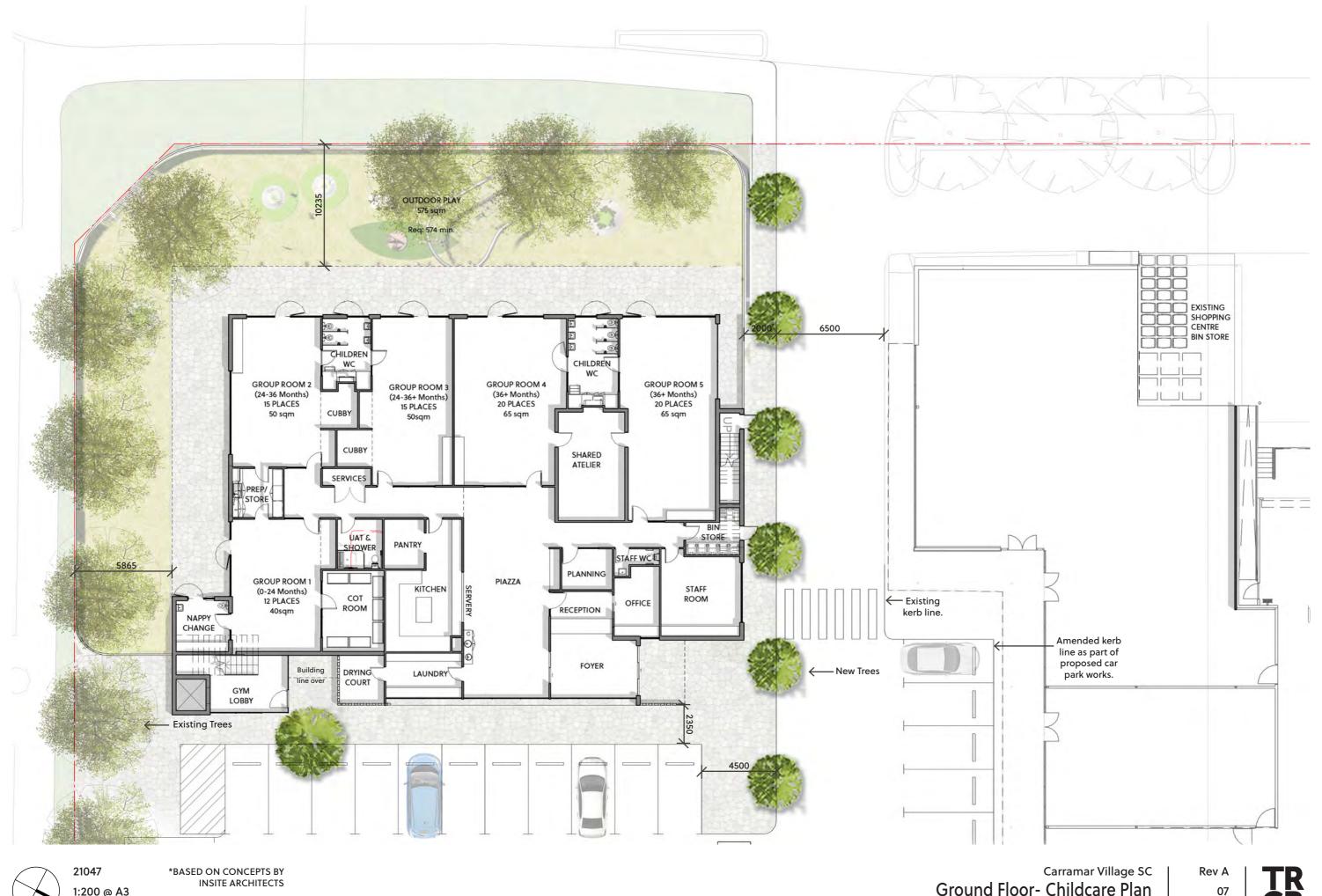




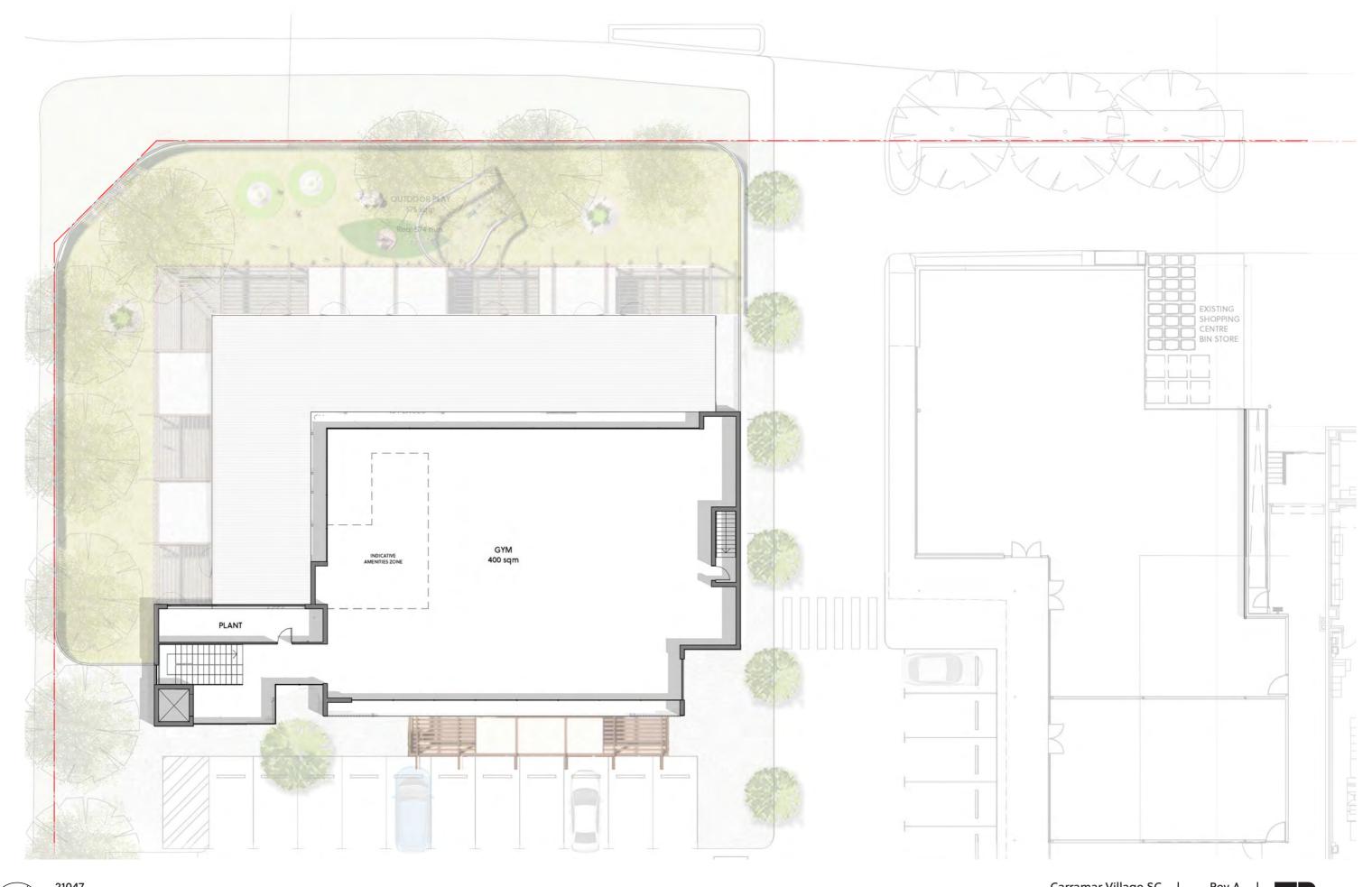
Carramar Village SC
Proposed Site Plan
Development Application

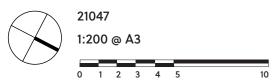
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1:200 @ A3 0 1 2 3 4 5 Ground Floor- Childcare Plan **Development Application** 05 2022

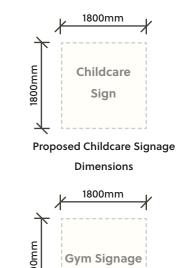




Carramar Village SC
Upper Floor- Gym Plan
Development Application

Rev A 08 05 2022

TR CB.

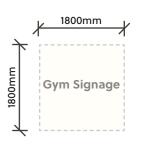




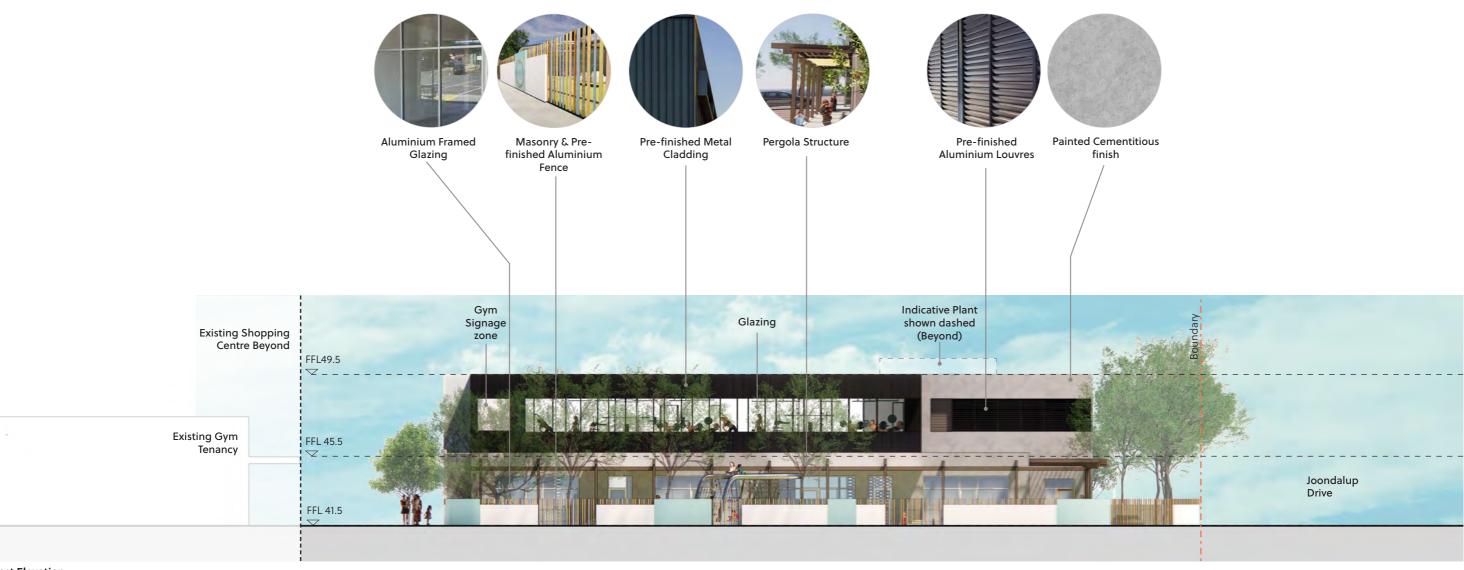
East Elevation

21047 1:200 @ A3

Carramar Village SC **Building Elevations Development Application** Rev A



Proposed Gym Signage
Dimensions



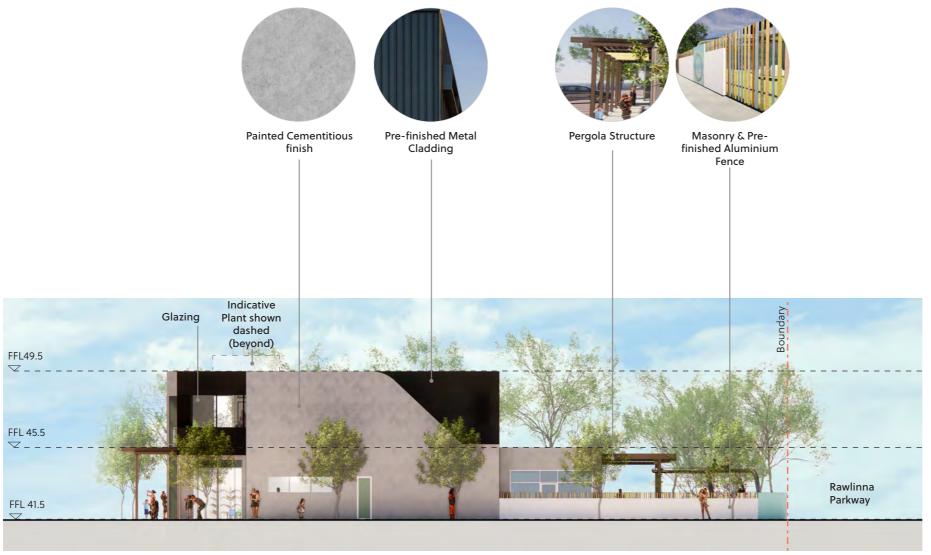
West Elevation

21047 1:200 @ A3 Carramar Village SC
Building Elevations
Development Application

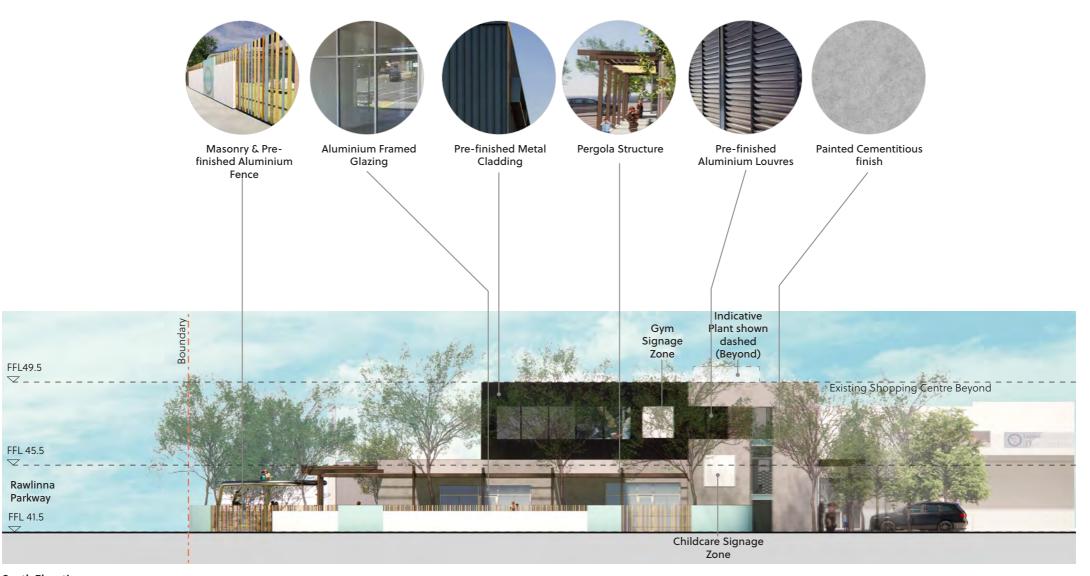
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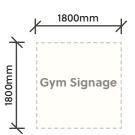


North Elevation



Childcare Sign

Proposed Childcare Signage
Dimensions



Proposed Gym Signage
Dimensions

05 2022





















Carramar Village SC
Location Plan
Design Review Panel

Rev A 01 10 2021

CITY OF WANNEROO DA2022/1047 JDAP - Form 1 - Child Care Centre and Recreation Centre Development SCHEDULE OF SUBMISSIONS FOLLOWING ADVERTISING

(Advertising Closed 13 October 2022)

No. of Submitters	No.	Summary of Submission	Administration's Comment	Recommendation
0	1.1	Supports the proposal.	Noted.	No modifications required.
44	1.2	Objects to the proposal.	Noted.	No modifications required.
1	1.3	Comments.	Noted.	No modifications required.
2.0 Traffic a	nd Par	king		
20	2.1	Proposal results in insufficient on site car parking facilities.	As discussed in the body of the report, the proposal results in an onsite parking shortfall of 89 parking bays. The applicant has provided a Parking Assessment Report in support of the application which concludes that sufficient capacity exists on the property to accommodate the peak parking demand of the existing shopping centre and the proposed development on site. The report identifies that inclusive of the peak parking demand of the proposed development, the car parking facilities on site achieve a peak occupancy of 52%. In light of this, the proposed development achieves a peak parking occupancy which is well below the capacity of parking facilities on site. This has been reviewed by the City and its conclusions are supported.	

No. of Submitters	No.	Summary of Submission	Administration's Comment	Recommendation
10	2.2	The proposal will create further traffic congestion at main entry points to the development and internal parking areas.	As discussed in the body of the report, a TIS has been provided in support of the application which concludes that the proposal will not result in significant increases in congestion at the existing access points to the subject site. This has been reviewed by the City and its conclusions are supported.	No modifications required.
9	2.3	Proposal results in further parking shortage and traffic congestion.	See response to comment 2.1 above and 2.4 below.	No modification required.
1	2.4	The volume of traffic entering or nearby to my property would exceed my tolerance.	As discussed in the body of the report, the TIS provided by the applicant details that the proposed development is considered to generate approximately 68 vehicles per hour (vph) and 64 vph during am and pm peak periods respectively. These figures account for both inbound and outbound vehicle movements. Joondalup Drive is the most impacted road and is forecast to accommodate an additional 41vph during the morning peak hour. As the peak vehicle movements per hour is less than 100vph per lane than the proposed development is considered to be low impact under the WAPC Transport Impact Assessment Guidelines. Given the above, the increased volume in vehicles as a result of the development is considered to be low impact and no modifications are required.	No modifications required.
1	2.5	It is the only parking for the oval when events are held.	Not a relevant planning consideration.	No modifications required.
2	2.6	Proposal will result in heavy traffic along Joondalup Drive, causing issues for vehicles turning out of Houghton Drive.	See response to comment 2.4 above.	No modifications required.

No. of Submitters	No.	Summary of Submission	Administration's Comment	Recommendation
1	2.7	Woolworths trucks turn into Rawlina Parkway from Joondalup Drive and there may be an issue with available road width.	The turning circles of Woolworths trucks into Rawlinna Parkway via Joondalup Drive is not relevant to the subject application. Notwithstanding this, vehicles associated with the operation of the Child Care Centre will be smaller in scale with waste collection via the existing waste collection arrangement currently in place at the centre.	No modifications required.
1	2.8	Joondalup Drive will be impacted as there are multiple access locations proposed.	No alteration to the existing access arrangements is proposed as part of this application. See response to comment 2.7 above.	No modifications required.
1	2.9	Drop off and pick up at the Carramar School is already very stressful for many parents.	The operation of Carramar Primary School and the sufficiency of its onsite parking is not relevant to the subject application.	No modifications required.
1	2.10	Is the reduction of parking spaces to encourage further car dependency as people travel further away to other neighbouring centres.	See response to 2.1 above.	No modifications required.
3	2.11	Insufficient land to accommodate the proposed development and appropriate parking facilities. This will result in people having to shop elsewhere	The proposed development has been located in accordance with the design criteria of Agreed Structure Plan 21B: Carramar South – Tapping North. In relation to the parking facilities provided on site, see response to 2.1 above.	No modifications required.
1	2.12	Supports proposal subject to a compliant number of on site parking bays as per the requirements of the applicable planning framework.	See response to 2.1 above.	No modifications required.
3.0 Amenity				
2	3.1	Damage to residential properties as a	The Child Care Centre is located approximately	Imposition of a

No. of Submitters	No.	Summary of Submission	Administration's Comment	Recommendation
		result of the construction of the Child Care Centre.	80 metres from the nearest residential dwelling and therefore is unlikely to cause damage to residential properties. Notwithstanding this, the City recommends the imposition of a condition requiring a construction management plan to ensure that appropriate measures are taken to minimise impact of construction activities upon the surrounding development.	condition requiring the preparation of a construction management plan prior to issuing of a building permit.
38	3.2	Too many of the same facilities in the locality.	Child Care Centre and Recreation Centre are discretionary uses within the Commercial zone and are capable of being considered on the subject site. The quantity, location and operation of the proposed uses is driven by market demand and there are no provisions within DPS 2 which limit the number or proximity of these uses in a particular area.	No modifications required.
3	3.3	Too many existing vacant properties on the subject site.	See response to comment 3.2 above.	No modifications required.
1	3.4	The proposed development will adversely impact this smaller and quieter centre.	There is no evidence to substantiate that the development will adversely impact the amenity of the neighbourhood centre.	No modifications required.
4.0 Safety				
11	4.1	The location of the child care centre could lead to accidents.	There is no evidence provided to substantiate this. In addition, the TIS provided by the applicant does not suggest that the proposed location of the Child Care Centre will adversely impact the functionality of Joondalup Drive. Notwithstanding this, the City will continue to monitor the performance of the road network to ensure the safety of pedestrians and motorists.	No modifications required.

No. of Submitters	No.	Summary of Submission	Administration's Comment	Recommendation
1	4.2	Increase in traffic in the locality and associated increase in hazards.	See response to comment 2.6 above.	No modifications required.
2	4.3	Approval of the Child Care Centre will affect the speed limit on Joondalup Drive.	There is no evidence provided to substantiate this. The City will continue to monitor the performance of the road network to ensure the safety of pedestrians and motorists.	No modifications required.
5.0 Built For				
1	5.1	The height of the building is not in keeping with the existing shopping centre.	As discussed in the body of the report the two storey built form of the development is comparable to the existing shopping centre developed on the property. The proposal incorporates a concealed roof design comparable to that of the existing development on the site In addition, there is no height restriction applicable to the site, and therefore two storey development is permitted.	No modifications required.
2	5.2	The two storey design of the Child Care Centre is inappropriate.	The Child Care Centre is situated on the ground floor of the proposed development with a Recreation Centre occupying the upper floor. Furthermore the bulk and scale of the development has been supported by the City's DRP. See response to Comment 5.1 above.	No modifications required.
6.0 Miscella				
3	6.1	Adverse impact to the existing small businesses in the area.	Not a relevant planning consideration.	No modifications required.
3	6.2	Existing buildings should be utilised prior to developing additional buildings on the property.	Not a relevant planning consideration.	No modifications required.
1	6.3	The use of that end of the car park should be utilised in better ways for the	Not a relevant planning consideration.	No modifications required.

No. of Submitters	No.	Summary of Submission	Administration's Comment	Recommendation
		whole community.		
1	6.4	The economy is in dire straights, food and petrol are of extortionate prices and local gym is never full.	Not a relevant planning consideration.	No modifications required.
1	6.5	The City should put their names to this proposal so we as rate payers know who we are dealing with, maybe they are of self interest like Carramar golf losing its lease of 28 years.	Not a relevant planning consideration.	No modifications required.
1	6.6	The proposed development is a waste of resources.	Not a relevant planning consideration.	No modifications required.
4	6.7	The proposed location is not a commercial industrial area like Banksia Grove.	See response to comment 4.1 above.	No modifications required.
1	6.8	Ridiculous proposal.	Not a relevant planning consideration.	No modifications required.
1	6.9	Unnecessary to build yet another gym and remove car parking spaces.	See response to comment 3.2 above.	No modifications required.
1	6.10	Submitter has a preference to park in the south western corner of the subject property.	Noted.	No modifications required.
1	6.11	It is bad enough we have to deal with the overpass, we do not need any more commercial buildings in our suburb.	See response to comment 4.1 above.	No modifications required.
2	6.12	Proposed development is right next to the truck entry for Woolworths.	The proposal does not alter the existing access arrangements and will not restrict deliveries to the shopping centre.	No modifications required.
1	6.14	Recommends that council encourage new businesses into the existing vacant shopfronts.	Not a relevant planning consideration.	No modifications required.
1	6.17	Supports proposal subject to a Construction Management Plan being	'	As per recommendation in

No. of Submitters	No.	Summary of Submission	Administration's Comment	Recommendation
		prepared addressing: Noise; Odour; Dust; and How car parking will be managed so as to not compromise the school and surrounding community.	requiring that a construction management plan be submitted prior to the issuing of a building permit.	3.1 above.



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Transportation Noise Assessment

Lot 2495 (#7) Cheriton Drive, Carramar

Reference: 22047249-01

Prepared for:

FRP Capital C/- Planning Solutions



Report: 22047249-01

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Date:	Rev	Description	Prepared By	Verified	
10-June-22	0	Issued to Client	Hao Tran	Matt Moyle	

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1 INTRODUCTION

It is proposed to construct a double storey commercial addition adjacent to Carramar Village Shopping Centre at Lot 2495 (#7) Cheriton Drive, Carramar, as located in *Figure 1-1*. Proposed plans of the development are provided in *Appendix A*.



Figure 1-1 Subject Site Locality

As the proposed development comprises of a childcare centre, which is considered noise sensitive, and is approximately 24 metres from Joondalup Drive ('Other significant freight/traffic routes'), a noise assessment against *State Planning Policy No. 5.4 Road and Rail Noise* is required.

Appendix B contains a description of some of the terminology used throughout this report.

Reference: 22047249-01 Page 1

2 CRITERIA

The criteria relevant to this assessment are provided in *State Planning Policy No. 5.4 Road and Rail Noise* (hereafter referred to as SPP 5.4) produced by the Western Australian Planning Commission (WAPC). The objectives of SPP 5.4 are to:

- Protect the community from unreasonable levels of transport noise;
- Protect strategic and other significant freight transport corridors from incompatible urban encroachment;
- Ensure transport infrastructure and land-use can mutually exist within urban corridors;
- Ensure that noise impacts are addressed as early as possible in the planning process; and
- Encourage best practice noise mitigation design and construction standards

Table 2-1 sets out noise targets that are to be achieved by proposals under which SPP 5.4 applies. Where the targets are exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.

Table 2-1 Noise Targets for Noise-Sensitive Land-Use

Outdoor N	oise Target	Indoor No	Indoor Noise Target		
55 dB L _{Aeq(Day)}	50 dB L _{Aeq(Night)}	40 dB L _{Aeq(Day)} (Living and Work Areas)	35 dB L _{Aeq(Night)} (Bedrooms)		

Notes:

- Day period is from 6am to 10pm and night period from 10pm to 6am.
- The outdoor noise target is to be measured at 1-metre from the most exposed, habitable facade of the noise sensitive building.
- For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.
- Outdoor targets are to be met at all outdoor areas as far as is reasonable and practicable to do so using the various noise mitigation measures outlined in the Guidelines.

The application of SPP 5.4 is to consider anticipated traffic volumes for the next 20 years from when the noise assessment is undertaken.

In the application of the noise targets, the objective is to achieve:

- indoor noise levels specified in *Table 2-1* in noise-sensitive areas (e.g. bedrooms and living rooms of houses and school classrooms); and
- a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and childcare centres, the design of outdoor areas should take into consideration the noise target.

Reference: 22047249-01 Page 2

¹ A habitable room is defined in State Planning Policy 3.1 as a room used for normal domestic activities that includes a bedroom, living room, lounge room, music room, sitting room, television room, kitchen, dining room, sewing room, study, playroom, sunroom, gymnasium, fully enclosed swimming pool or patio.

3 METHODOLOGY

Noise measurements and modelling have been undertaken generally in accordance with the requirements of SPP 5.4 and associated Guidelines² as described in *Section 3.1* and *Section 3.2*.

3.1 Site Measurements

Noise monitoring was undertaken on site using a Rion NA-28 (S/N: 211611) sound level meter (refer *Figure 3-1*). This meter complies with the instrumentation requirements of *Australian Standard 2702-1984 Acoustics – Methods for the Measurement of Road Traffic Noise*. The meter was field calibrated before and after the measurement session and found to be accurate to within +/- 1 dB. Lloyd George Acoustics also holds current laboratory calibration certificate for the meter.

The microphone was approximately 1.4 metres above existing ground level and approximately 24 metres from edge of Joondalup Drive main carriageway. The measurements were recorded on 12 October 2021, between 2.00pm and 3.00pm.



Figure 3-1 Sound Level Meter on Site

A relationship between hourly traffic volumes and noise levels can then be derived to determine the existing $L_{Aeq(Day)}$ and $L_{Aeq(Night)}$ noise levels at the subject site.

Reference: 22047249-01 Page 3

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² Road and Rail Noise Guidelines, September 2019

3.2 Noise Modelling

The computer programme *SoundPLAN 8.2* was utilised incorporating the *Calculation of Road Traffic Noise* (CoRTN) algorithms, modified to reflect Australian conditions. The modifications included the following:

- Vehicles were separated into heavy (Austroads Class 3 upwards) and non-heavy (Austroads Classes 1 & 2) with non-heavy vehicles having a source height of 0.5 metres above road level and heavy vehicles having two sources, at heights of 1.5 metres and 3.6 metres above road level, to represent the engine and exhaust respectively. By splitting the noise source into three, allows for less barrier attenuation for high level sources where barriers are to be considered.
- Note that a -8.0 dB correction is applied to the exhaust and -0.8 dB to the engine (based on Transportation Noise Reference Book, Paul Nelson, 1987), so as to provide consistent results with the CoRTN algorithms for the no barrier scenario;

Predictions are made at heights of 1.4 metres above floor level and at 1-metre from the window of each habitable room, resulting in a + 2.5 dB correction due to reflected noise.

Various input data are included in the modelling such as ground topography, road design, traffic volumes etc. These model inputs are discussed in the following sections.

3.2.1 Ground Topography

Topographical and road design data for this project was taken from publicly available data e.g. *Google*. This was combined with the proposed dwelling and existing neighbouring dwellings to create a 3D noise model.

3.2.2 Traffic Data

Traffic data includes:

• Road Surface – The noise relationship between different road surface types is shown in *Table 3-1*.

Table 3-1 Noise Relationship Between Different Road Surfaces

Road Surfaces							
Chip Seal				Asphalt			
14mm	10mm	5mm	Slurry	Dense Graded	Novachip	Stone Mastic	Open Graded
+3.5 dB	+2.5 dB	+1.5 dB	+1.0 dB	0.0 dB	-0.2 dB	-1.5 dB	-2.5 dB

The existing road surface is dense graded asphalt and is expected to remain unchanged into the future.

Vehicle Speed – The existing and future posted speed is 70km/hr.

Reference: 22047249-01 Page 4

 Traffic Volumes – Existing (2016) and forecast (2041) traffic volumes were provided by Main Roads WA (Thomas Ng, Traffic Modelling Analyst, Reference: #42062). A validation plot was also provided allowing the Main Roads WA traffic volume model to be calibrated against actual counts. More recent traffic data was also obtained from the Main Roads WA Traffic Map. *Table 3-2* provides the traffic volume input data in the model.

Table 3-2 Traffic Information Used in the Modelling

	Scenario				
Parameter	Existing – 2017/18		Future - 2041		
	Eastbound	Westbound	Northbound	Southbound	
24 Hour Volume	17,745	16,849	21,300	24,900	
% Heavy	7.1	7.1	6	6	

3.2.3 Ground Attenuation

The ground attenuation has been assumed to be 0.0 (0%) for the roads and 0.5 (50%) elsewhere. Note 0.0 represents hard reflective surfaces such as water and 1.00 represents absorptive surfaces such as grass.

4 RESULTS

4.1 Noise Monitoring

The results of the hourly noise level measurements, in free-field conditions, were:

• 12 October 2021: 2.00pm to 3.00pm – 58.5 dB L_{Aeq.1hour}.

Combining the measured noise levels with the hourly traffic volumes as shown in *Figure 4-1*, the $L_{Aeq(Day)}$ and $L_{Aeq(Night)}$ have been determined to be 58.0 dB $L_{Aeq(Day)}$ and 51.3 dB $L_{Aeq(Night)}$. Based on these results, the $L_{Aeq(Day)}$ is more critical than the $L_{Aeq(Night)}$ since their difference is greater than 5 dB (refer *Section 2* criteria).



Figure 4-1 Noise Level Relationship to Hourly Traffic Volumes

4.2 Noise Modelling

The noise model was initially set-up for existing conditions and calibrated to the noise measurement location. The model is then updated to include the proposed building plans and future traffic volumes, maintaining the same model calibration. *Table 4-1* provides the predicted $L_{Aeq(Day)}$ noise levels to the glazed facade of each habitable room.

Table 4-1 Predicted Future (2041) LAeq(Day) Outdoor Noise Levels

Room	L _{Aeq(Day)} , dB
Group Room 1	61
Group Room 2	59-63
Group Room 3	58
Group Room 4	57
Group Room 5	47-56
Nappy Change	61
Piazza/Foyer	57
Staff Room	44
Office	50

5 ASSESSMENT

The objectives of SPP 5.4 are to achieve:

- indoor noise levels specified in *Table 2-1* in noise-sensitive areas (e.g. bedrooms and living rooms of houses and school classrooms); and
- a reasonable degree of acoustic amenity for outdoor living areas on each residential lot.

Where the outdoor noise targets of *Table 2-1* are achieved, no further controls are necessary. As such, *Table 5-1* provides the minimum construction recommended.

Table 5-1 Recommended Minimum Construction

Element	Room	Construction	
	Group Room 1	Assume window approximately 40% of floor area and therefore is to achieve $R_w + C_{tr} \ge$ 30, likely achievable using 6.5mm thick Vlam Hush glass in fixed/awning style window with acoustic seals. Glass door to be of same glass with acoustic seals.	
	Group Room 2	South elevation window approximately 40% of floor area and therefore is to achieve $R_w + C_{tr} \ge 31$, likely achievable using 10.38mm thick glass in commercial grade fixed/awning style window with acoustic seals.	
		Glazing to floor ratio would need to reduce to 35% for performance to be $R_w + C_{tr} \ge 30$, likely achievable using 6.5mm thick laminated VLam Hush glass in fixed/awning style window with acoustic seals.	
		West elevation window approximately 40% of floor area and therefore is to achieve $R_w + C_{tr} \ge 28$, likely achievable using 6.38mm thick laminated glass in fixed/awning style window with acoustic seals.	
		Glass door to be 6.38mm thick laminated glass with acoustic seals.	
Glazing	Group Room 3	Window is approximately 40% of floor area and therefore is to achieve $R_w + C_{tr} \ge 28$, likely achievable using 6.38mm thick laminated glass in fixed/awning style window with acoustic seals.	
		Glass door to be 6.38mm thick laminated glass with acoustic seals.	
	Group Room 4	West elevation window approximately 40% of floor area and therefore is to achieve $R_w + C_{tr} \ge 27$, likely achievable using 6mm thick glass in fixed/awning style window with acoustic seals.	
		Glass door to be 6mm thick glass with acoustic seals.	
	Group Room 5	West elevation window approximately 40% of floor area and therefore is to achieve $R_w + C_{tr} \ge 26$, likely achievable using 6mm thick glass in fixed/awning style window with acoustic seals.	
		Glass door to be 6mm thick glass with acoustic seals.	
	Nappy Change	Assume window approximately 40% of floor area and therefore is to achieve $R_w + C_{tr} \ge 30$, likely achievable using 6.5mm thick Vlam Hush glass in fixed/awning style window with acoustic seals. Glass door to be of same glass with acoustic seals.	
	Piazza/Foyer	West elevation windows are approximately 40% of floor area and therefore is to achieve $R_w + C_{tr} \ge 27$, likely achievable using 6mm thick glass in fixed/awning style window with acoustic seals.	

Element	Room	Construction
Walls	All	Walls to be concrete panels at least 150mm thick. Any plasterboard facing to be on furring channels or studwork with fibrous cavity insulation. Final construction should be verified at building permit stage by a suitably qualified acoustical consultant.
Roof/Ceiling	Group Room 1, Group Room 2, Nappy Change	Ceiling to be 13mm thick sound-rated plasterboard with R4 insulation above.
	All Others	Ceiling to be 13mm thick plasterboard with R4 insulation above.
Outdoor Living	Outdoor Play	At least one outdoor play area is noted to be on the opposite side and/or predicted to be below the noise target and therefore compliance with the Policy is considered achieved.
Ventilation	Rooms listed above	Fresh air requirements to be satisfied on the basis of windows closed. Any ducted fresh air intakes are to be on the side of the house opposite the corridor.
Notification	Lot	Notification to be provided on lot title advising of the potential noise impacts.

Note: Install cover mould to weep holes in above window frames where applicable

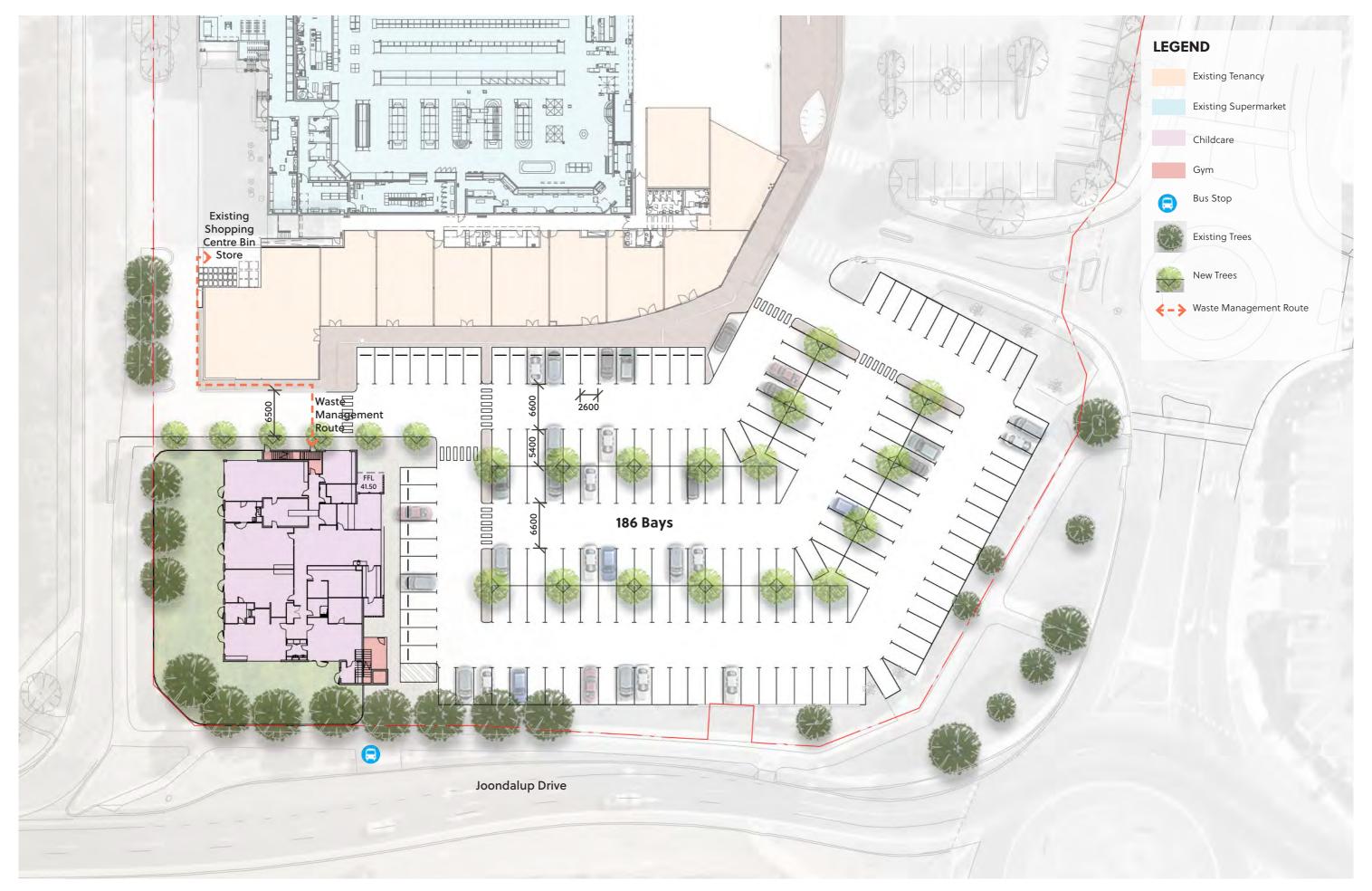
By implementing the above construction recommendations, noise levels are calculated to comply with the targets of SPP 5.4. Alternative constructions can be accepted provided these are supported by a laboratory calibration certificate.

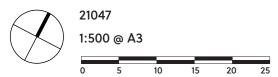
It should be noted that the recommendations in this report are calculated to achieve acceptable internal noise levels in accordance with *State Planning Policy No. 5.4*. Compliance with this Standard does not result in all residents considering the noise level as acceptable as this is a subjective response. Where a resident is particularly sensitive to noise, they may wish to consider upgrading all glass (thicker, laminated glass results in higher levels of attenuation) and converting sliding windows/doors to hinged versions such as awning/casement style.

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Appendix A

Development Plans

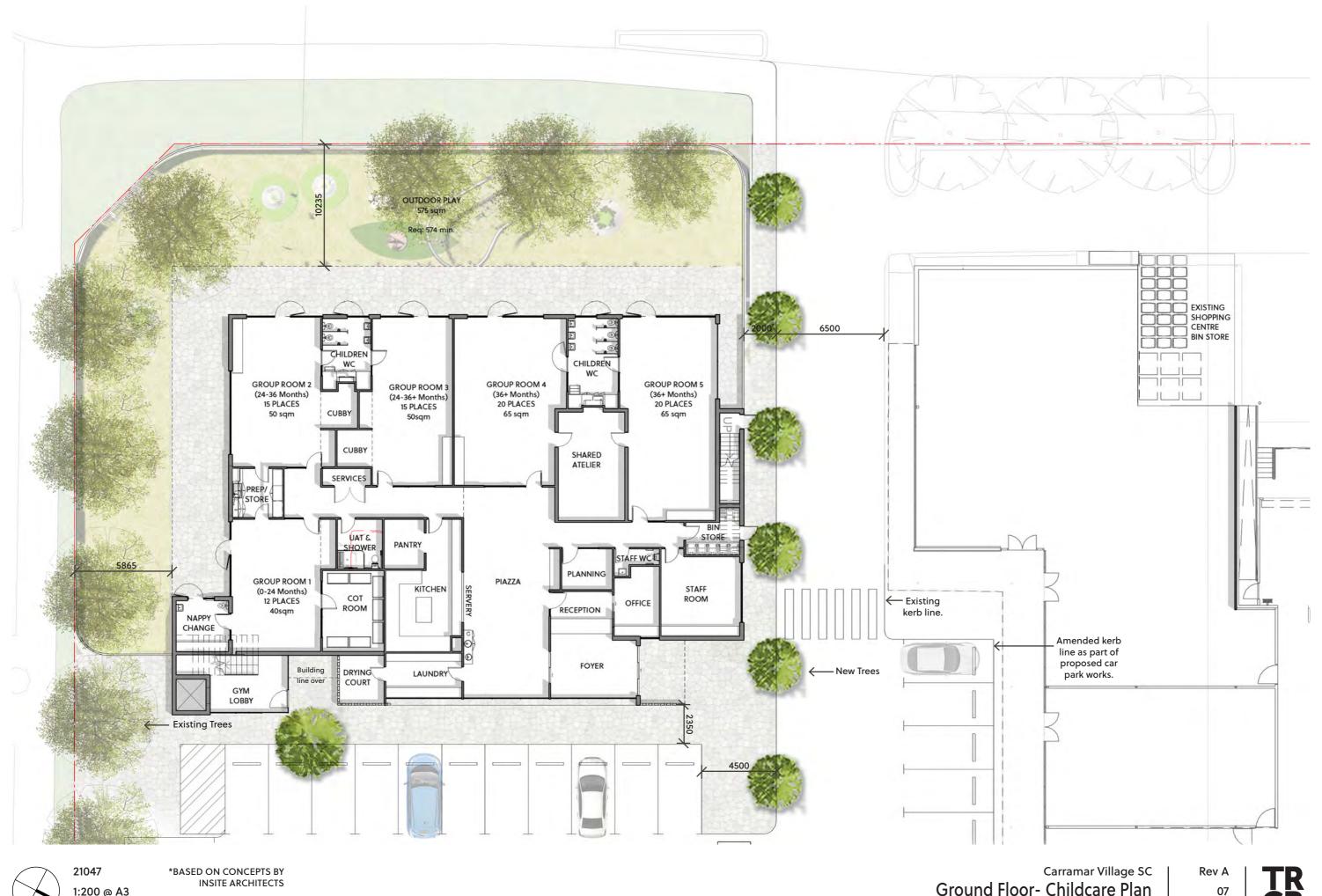




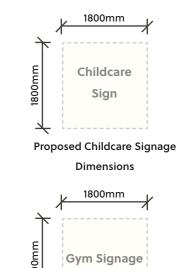
Carramar Village SC
Proposed Site Plan
Development Application

Rev A 06 05 2022





1:200 @ A3 0 1 2 3 4 5 Ground Floor- Childcare Plan **Development Application** 05 2022



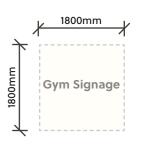


East Elevation

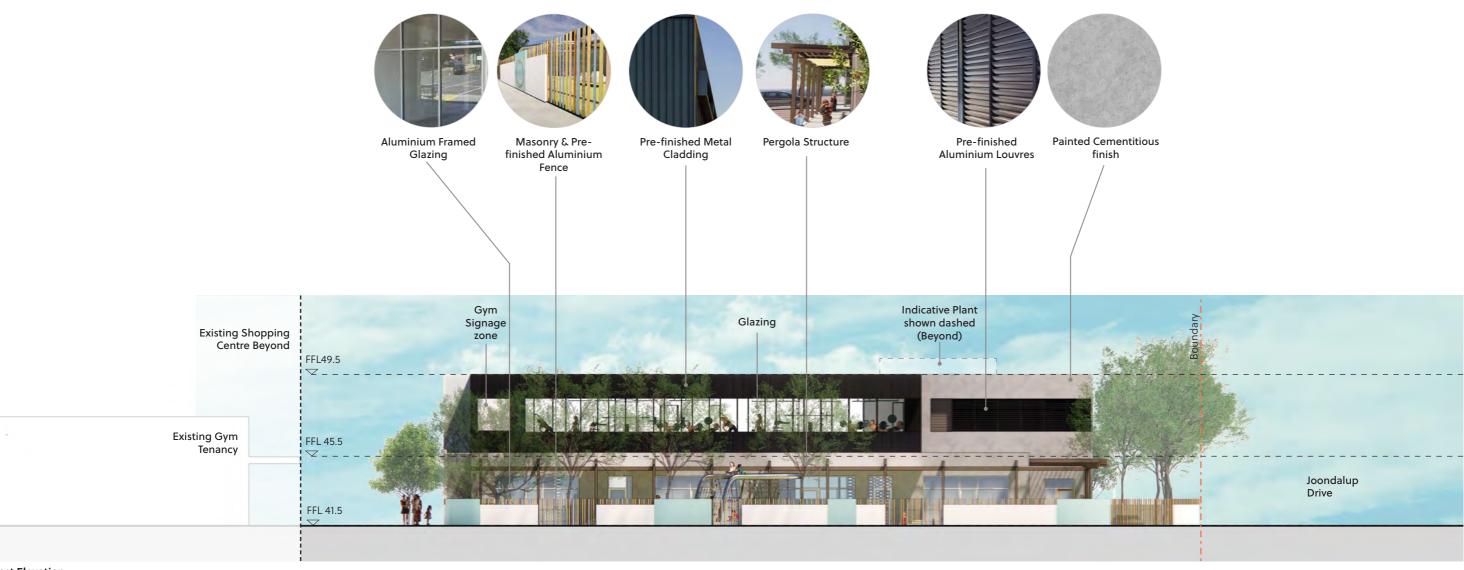
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Carramar Village SC **Building Elevations Development Application** Rev A

05 2022



Proposed Gym Signage
Dimensions



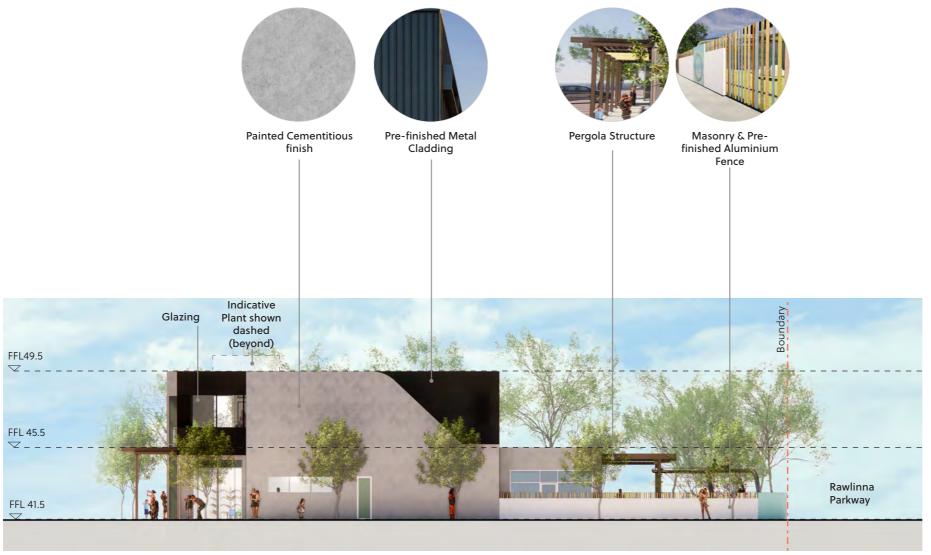
West Elevation

21047 1:200 @ A3 Carramar Village SC
Building Elevations
Development Application

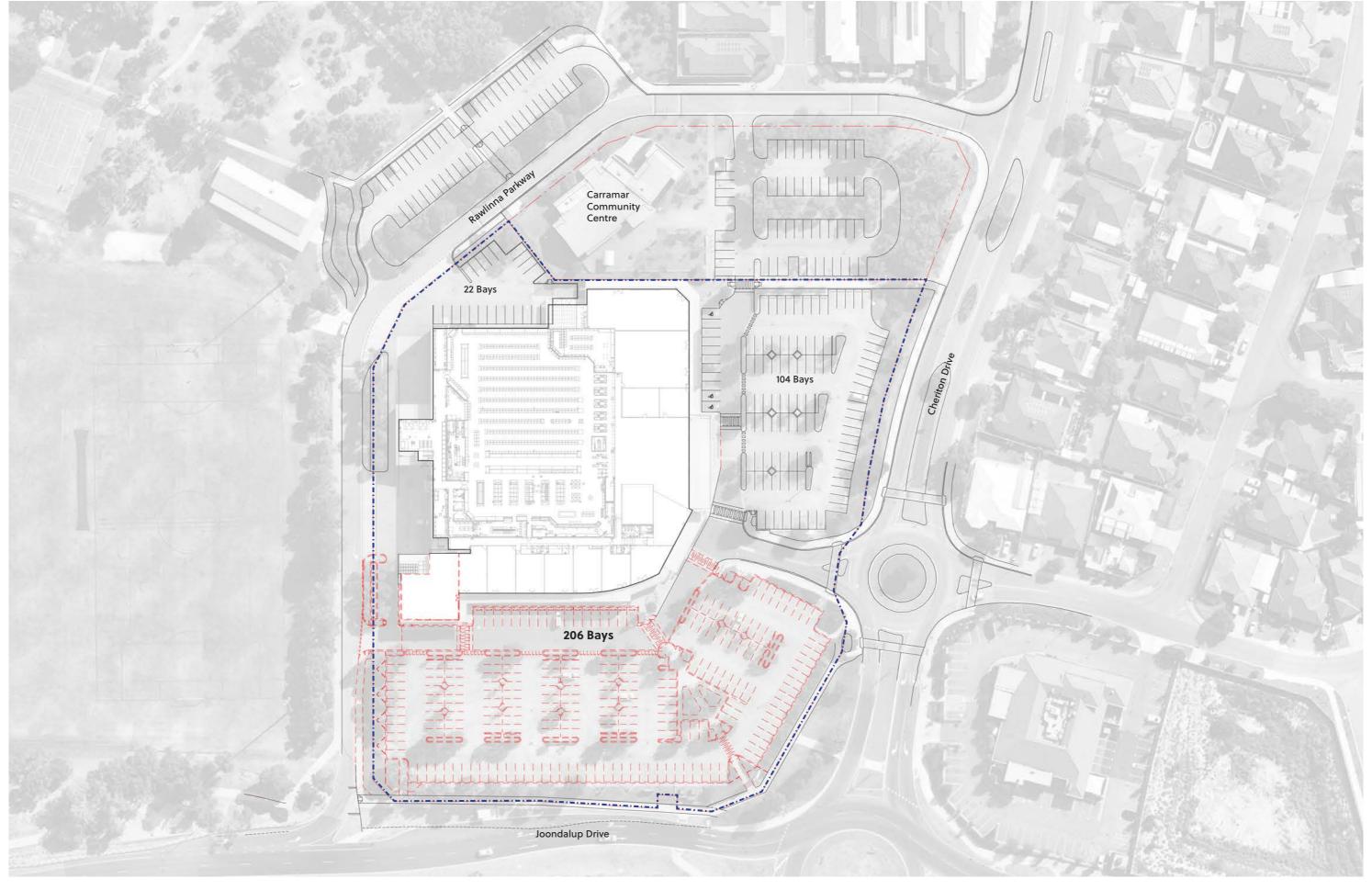
Rev A 10

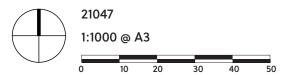
05 2022

TR



North Elevation

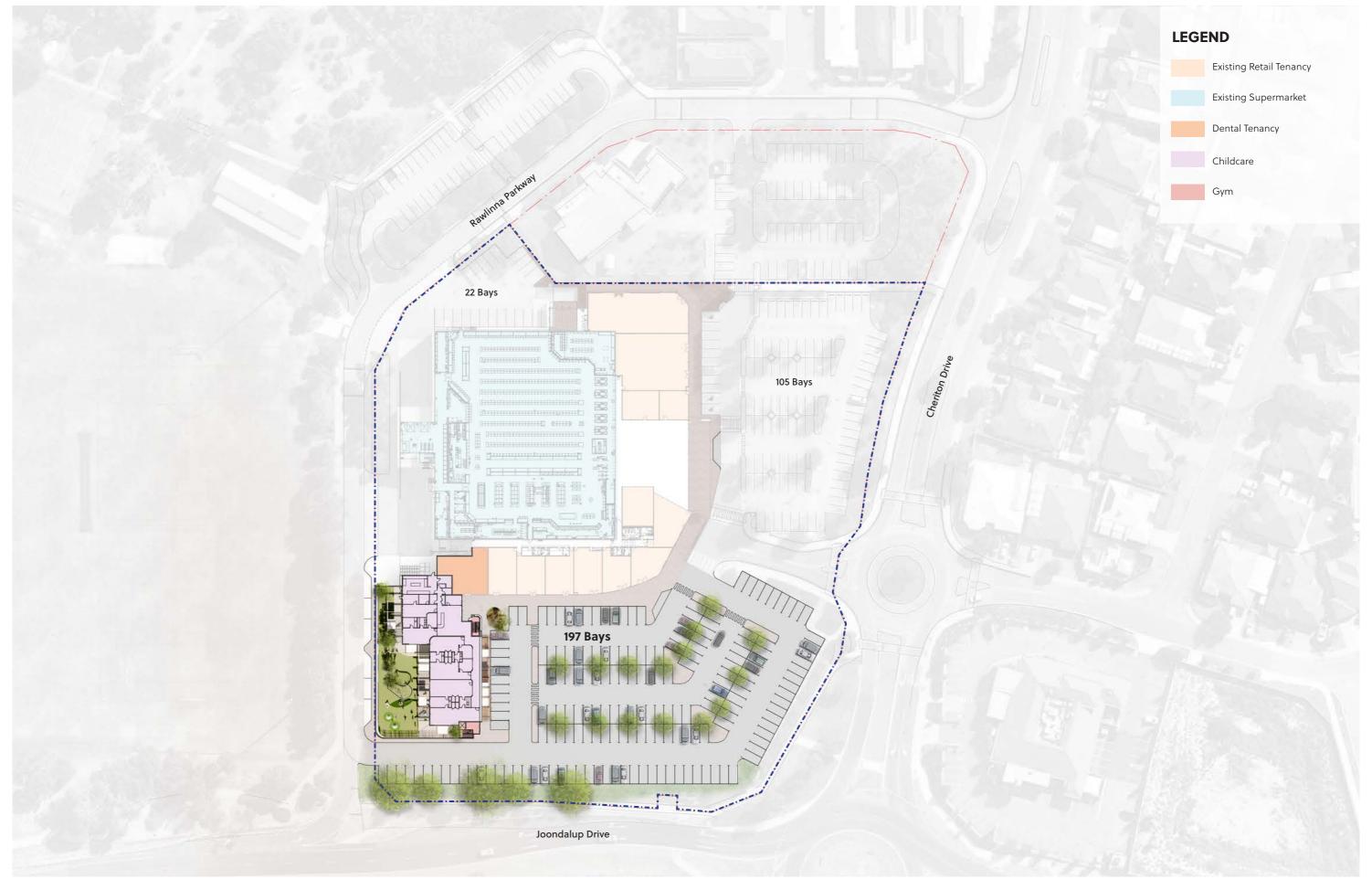




Carramar Village SC
Existing Site Plan
Design Review Panel

Rev A 03 10 2021

TR CB.

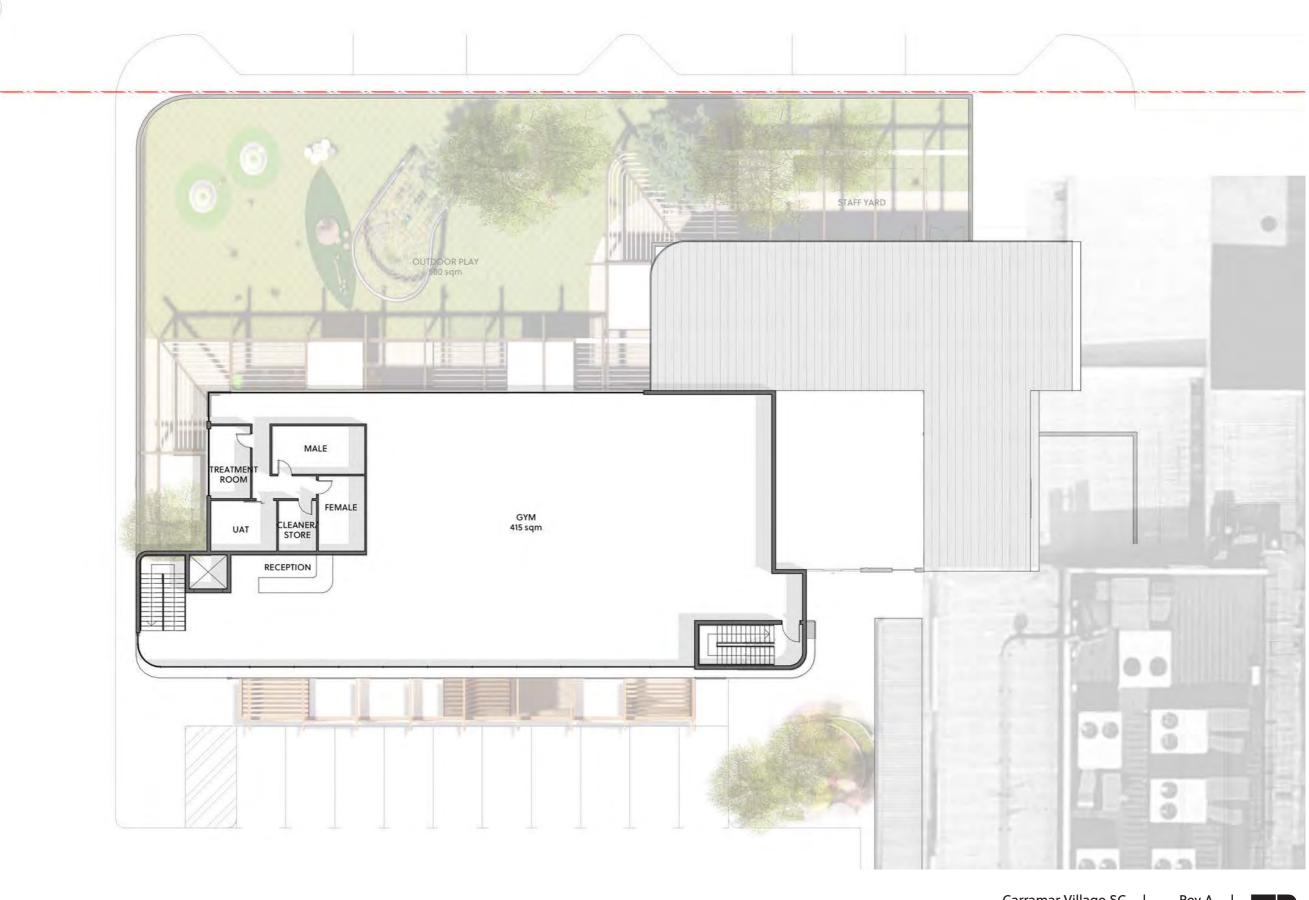


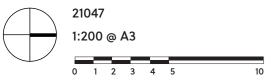


Carramar Village SC
Proposed Site Plan
Design Review Panel

Rev A 04 10 2021







Carramar Village SC
Upper Floor- Gym Plan
Design Review Panel

Rev A 06 10 2021 TR CB.



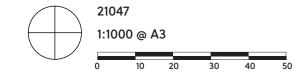
South Elevation



East Elevation



West Elevation



Carramar Village SC
Building Elevations
Design Review Panel

Rev A 07 10 2021









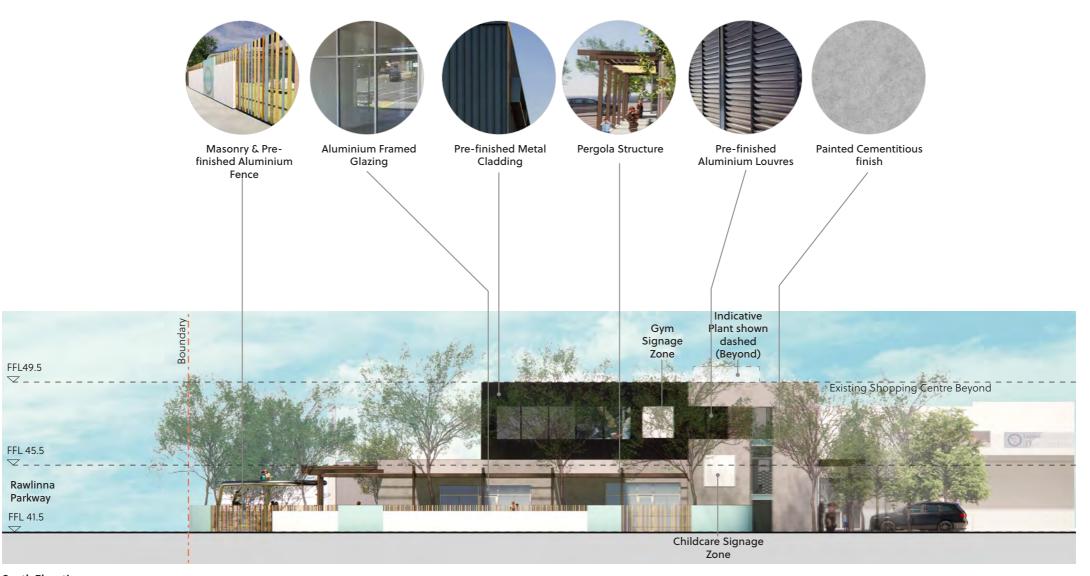






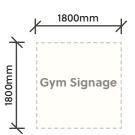






Childcare Sign

Proposed Childcare Signage
Dimensions



Proposed Gym Signage
Dimensions

05 2022

Appendix B

Terminology

The following is an explanation of the terminology used throughout this report.

Decibel (dB)

The decibel is the unit that describes the sound pressure and sound power levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

A-Weighting

An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as L_A dB.

L_1

An L_1 level is the noise level which is exceeded for 1 per cent of the measurement period and is considered to represent the average of the maximum noise levels measured.

L₁₀

An L_{10} level is the noise level which is exceeded for 10 per cent of the measurement period and is considered to represent the "intrusive" noise level.

L₉₀

An L_{90} level is the noise level which is exceeded for 90 per cent of the measurement period and is considered to represent the "background" noise level.

Lea

The L_{eq} level represents the average noise energy during a measurement period.

L_{A10,18hour}

The $L_{A10,18\,hour}$ level is the arithmetic average of the hourly L_{A10} levels between 6.00 am and midnight. The *CoRTN* algorithms were developed to calculate this parameter.

L_{Aeq,24hour}

The $L_{Aeq,24 \text{ hour}}$ level is the logarithmic average of the hourly L_{Aeq} levels for a full day (from midnight to midnight).

L_{Aeq,8hour} / L_{Aeq (Night)}

The $L_{Aeq\,(Night)}$ level is the logarithmic average of the hourly L_{Aeq} levels from 10.00 pm to 6.00 am on the same day.

L_{Aeq,16hour} / L_{Aeq (Day)}

The $L_{Aeq (Day)}$ level is the logarithmic average of the hourly L_{Aeq} levels from 6.00 am to 10.00 pm on the same day. This value is typically 1-3 dB less than the $L_{A10,18hour}$.

Noise-sensitive land use and/or development

Land-uses or development occupied or designed for occupation or use for residential purposes (including dwellings, residential buildings or short-stay accommodation), caravan park, camping ground, educational establishment, child care premises, hospital, nursing home, corrective institution or place of worship.

About the Term 'Reasonable'

An assessment of reasonableness should demonstrate that efforts have been made to resolve conflicts without comprising on the need to protect noise-sensitive land-use activities. For example, have reasonable efforts been made to design, relocate or vegetate a proposed noise barrier to address community concerns about the noise barrier height? Whether a noise mitigation measure is reasonable might include consideration of:

- The noise reduction benefit provided;
- The number of people protected;
- The relative cost vs benefit of mitigation;
- Road conditions (speed and road surface) significantly differ from noise forecast table assumptions;
- Existing and future noise levels, including changes in noise levels;
- Aesthetic amenity and visual impacts;
- Compatibility with other planning policies;
- Differences between metropolitan and regional situations and whether noise modelling requirements reflect the true nature of transport movements;
- Ability and cost for mobilisation and retrieval of noise monitoring equipment in regional areas;
- Differences between Greenfield and infill development;
- Differences between freight routes and public transport routes and urban corridors;
- The impact on the operational capacity of freight routes;
- The benefits arising from the proposed development;
- Existing or planned strategies to mitigate the noise at source.

About the Term 'Practicable'

'Practicable' considerations for the purposes of the policy normally relate to the engineering aspects of the noise mitigation measures under evaluation. It is defined as "reasonably practicable having regard to, among other things, local conditions and circumstances (including costs) and to the current state of technical knowledge" (*Environmental Protection Act 1986*). These may include:

- Limitations of the different mitigation measures to reduce transport noise;
- Competing planning policies and strategies;
- Safety issues (such as impact on crash zones or restrictions on road vision);
- Topography and site constraints (such as space limitations);
- Engineering and drainage requirements;
- Access requirements (for driveways, pedestrian access and the like);
- Maintenance requirements;
- Bushfire resistance or BAL ratings;
- Suitability of the building for acoustic treatments.

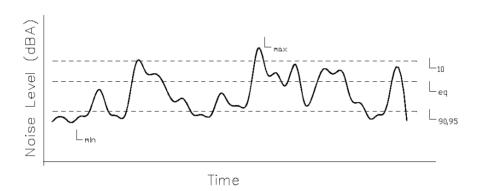
R_w

This is the weighted sound reduction index and is similar to the previously used STC (Sound Transmission Class) value. It is a single number rating determined by moving a grading curve in integral steps against the laboratory measured transmission loss until the sum of the deficiencies at each one-third-octave band, between 100 Hz and 3.15 kHz, does not exceed 32 dB. The higher the $R_{\rm w}$ value, the better the acoustic performance.

C_{tr}

This is a spectrum adaptation term for airborne noise and provides a correction to the R_w value to suit source sounds with significant low frequency content such as road traffic or home theatre systems. A wall that provides a relatively high level of low frequency attenuation (i.e. masonry) may have a value in the order of -4 dB, whilst a wall with relatively poor attenuation at low frequencies (i.e. stud wall) may have a value in the order of -14 dB.

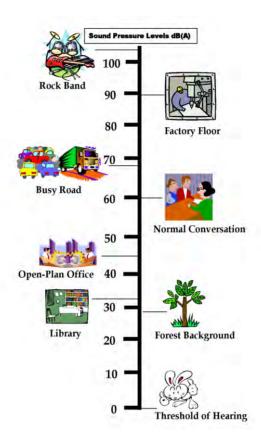
Chart of Noise Level Descriptors

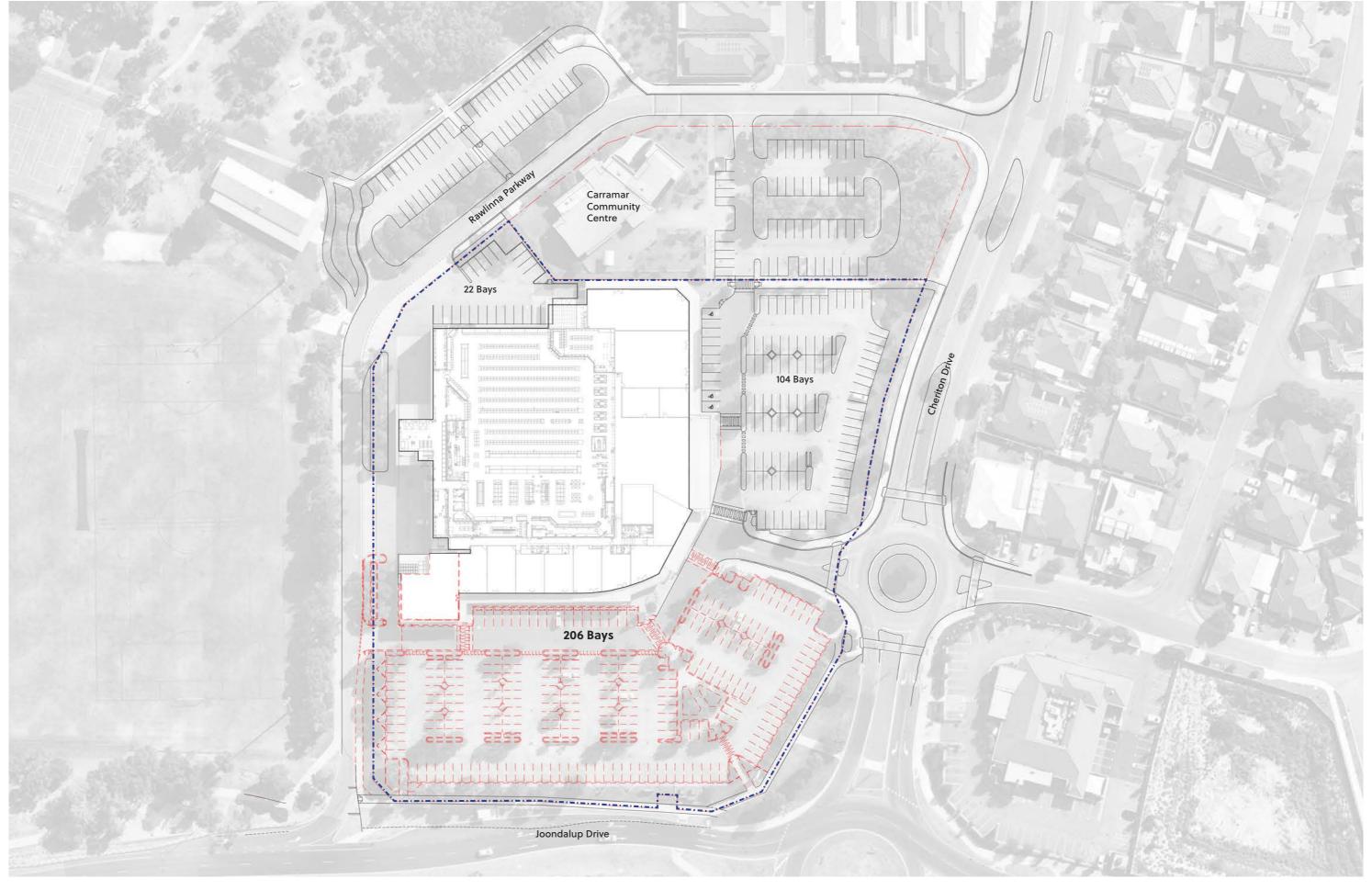


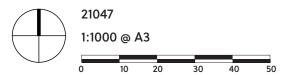
Austroads Vehicle Class

VEHICLE CLASSIFICATION SYSTEM			
LASS	LIGHT VEHICLES		
1	SHORT Cat Van, Wagan, 4WD, LHBY, Bloycle, Molorcycle		
2	SHORT - TOWING Trailer, Caravan, Boat		
	HEAVY VEHICLES		
3	TWO AXLE TRUCK OR BUS *2 cales		
4	THREE AXLE TRUCK OR BUS +3 cates, 2 cate groups		
5	FOUR (or FIVE) AXLE TRUCK *4 (5) cates; 2 cate groups		
6	THREE AXLE ARTICULATED *3 cakes, 3 cake groups		
7	FOUR AVLE ARTICULATED 14 cates 3 or 4 cate groups		
8	RVE AXLE ARTICULATED *5 codes, 3+ code groups		
9	SX AXE ARTICULATED *6 cates, 3+ cate groups or 7+ cate	es, 3 once groups	
	LONG VEHICLES AND ROAD	TRAINS	
10	B DOUBLE of HEAVY TRUCK and TRAUS *7 + axies, 4 axie groups		
11	DOUBLE ROAD TRAIN *7 + cates, 5 or 6 cate groups		
12	TRIPLE ROAD TRAIN		

Typical Noise Levels



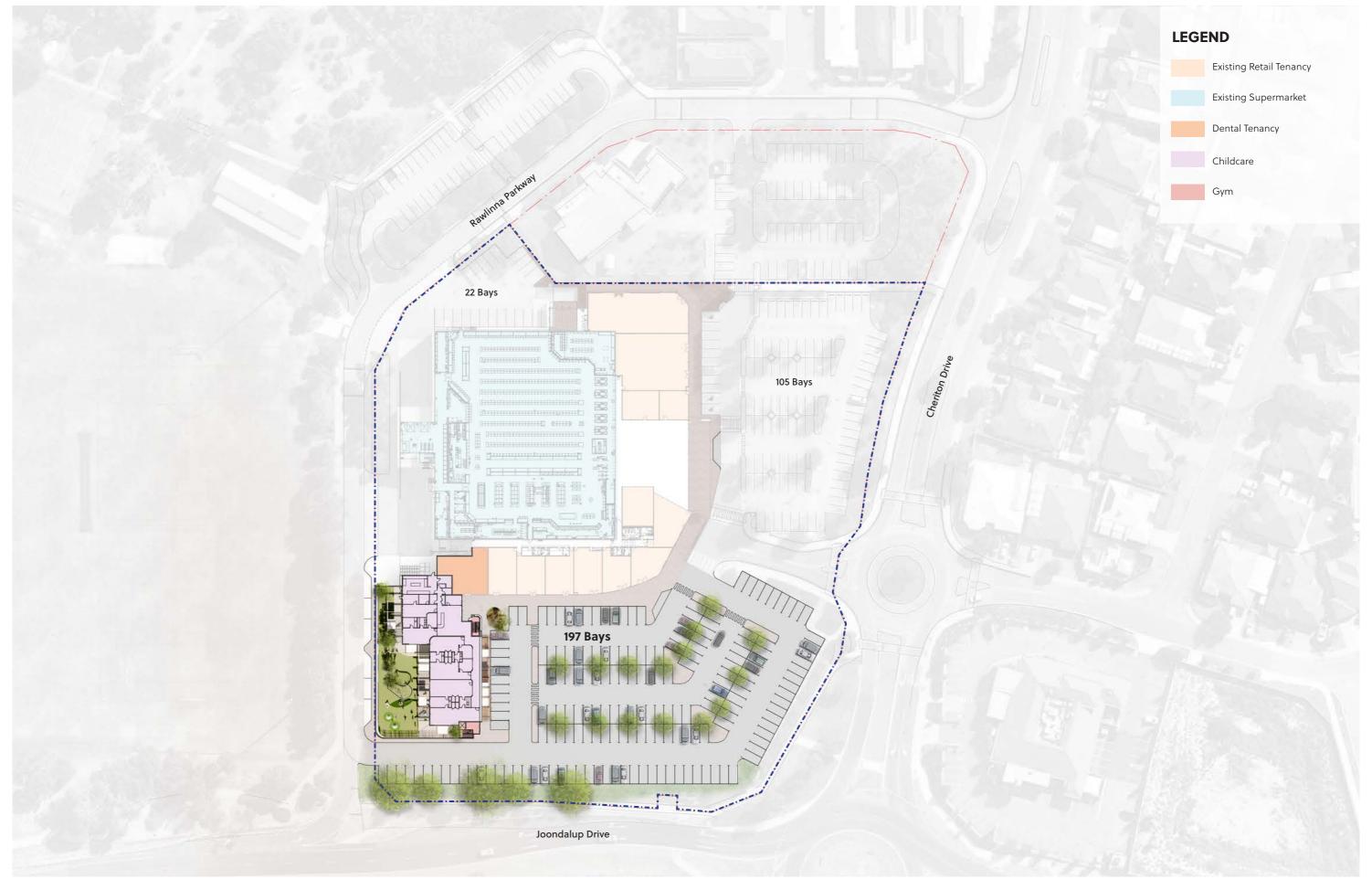




Carramar Village SC
Existing Site Plan
Design Review Panel

Rev A 03 10 2021

TR CB.

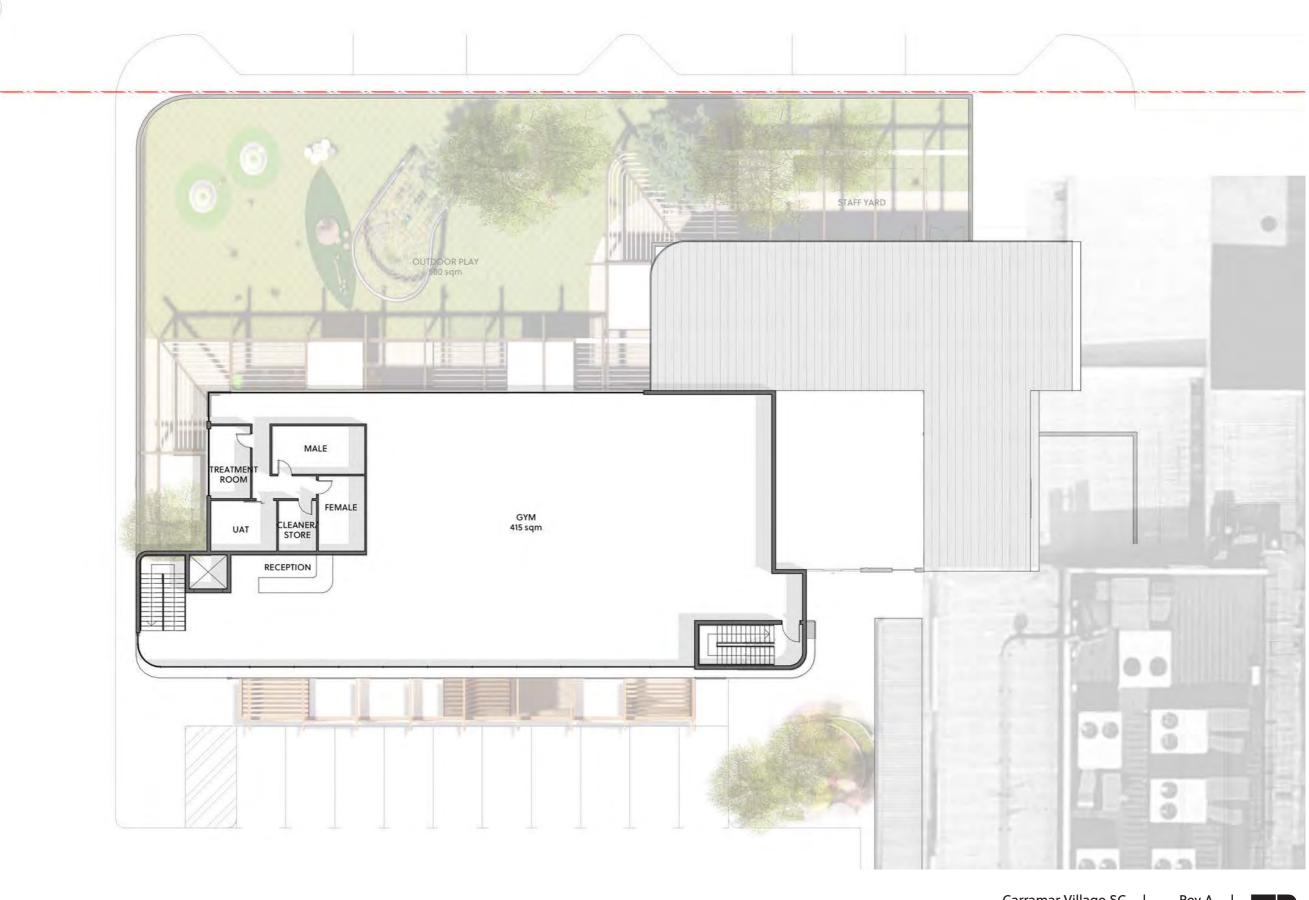


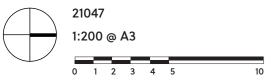


Carramar Village SC
Proposed Site Plan
Design Review Panel

Rev A 04 10 2021







Carramar Village SC
Upper Floor- Gym Plan
Design Review Panel

Rev A 06 10 2021 TR CB.



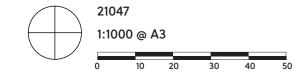
South Elevation



East Elevation



West Elevation



Carramar Village SC
Building Elevations
Design Review Panel

Rev A 07 10 2021























Design Review Panel Meeting Minutes

Meeting Date and Time:Thursday 28th October 2021; 2:00pmMeeting Venue:Lechenaultia Room, City of Wanneroo

Meeting Commenced: 2:00pm

1. Attendance

Panel Members

Dominic Snellgrove Chairperson
Munira Mackay Panel Member
Simon Venturi Panel Member

Proponents

Item No. 4.1

Josh Watson Planning Solutions

Stephanie Voon TBRC
Graham Taylor TBRC
Anthony Del Borrello FRP Capital

City of Wanneroo Officers

<u>Item No. 4.1</u> Nicholas Bertone

2. Apologies

Nil

3. Declaration of Interest

Nil





4. Design Review Applications

Item 1

4.1 Property Location: 7 Cheriton Drive Carramar

Development Application No: n/a

Development Description: Child Care Centre, Gym & Landscaping

Applicant: Planning Solutions

Owner: Carramar Village Fund Pty Ltd

4.1a Officer Presentation

4.1b Proponent Presentation

4.1c Design Principals

Items presented to the Design Review Panel are assessed by a panel of architects and urban and landscape designers referencing the 11 Design Principals outlined in Appendix 1 of Local Planning Policy 4.23 – Design Review Panel, which are:

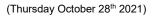
- 1. Context and Character
- 2. Landscape Quality
- 3. Built form and Scale
- 4. Functionality and Build Quality
- 5. Sustainability
- 6. Amenity
- 7. Legibility
- 8. Safety
- 9. Community
- 10. Aesthetics
- 11. Accessibility

The Panel will provide commentary in relation to those areas of the proposal that demonstrate strengths and design weaknesses and those areas that would benefit from further improvement.

- (a) Strengths of the Proposal
- (b) Weaknesses of the Proposal
- (c) Suggested Improvements to the Proposal
- (d) Recommendation



Design review report and recommendations							
Design quality eva	luatio	n					
		Supported					
		Pending further attention					
		nt supported					
		Insufficient information to evaluate					
Strengths of the proposal		 An important and valued community asset. Visually distinctive and contemporary aesthetic incorporating deep reveals and an appropriate palette of materials, colours and textures. 					
		Generous and legible childcare entry foyer.					
		Consolidated and rationalised car park layout.					
		 Functional childcare planning with play spaces located with direct access to adjoining outdoor space. 					
Principle 1 - Context and character		Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.					
		 The proposal in its current masterplan layout deviates from the current design guidelines by not allowing for a direct, intuitive and legible pedestrian link along the southern edge of the existing retail frontage westward to connect with the adjoin POS. The location of the proposed childcare facility is situated remotely from the Joondalup Drive street front and does not therefore achieve adequate streetscape engagement. 					
		The relocated road access from Rawlinna Parkway into the carpark area is located close t the Joondalup Drive vehicle access point raising concerns in relation to safety.					
Recommendation		Consider masterplan options that facilitate a pedestrian connection in accordance with the guidelines.					
		 Consider masterplan options that seek to engage the childcare facility more actively with the Joondalup Drive streetscape. 					
		 Consider removing vehicle access to the site from Rawlinna Parkway altogether and consolidating car park access from the roundabout on Cheriton Drive. 					
		 This may enable the childcare facility to engage with the street and facilitate a pedestrian connection to the POS. 					
Principle 2 - Landscape quality		Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.					
		Not discussed					
Recommendation		Consider appointing a landscape professional t assist with the development of a landscape proposal.					





Principle 3 - Built	Good design ensures that the massing and height of development is appropriate to its		
form and scale	setting and successfully negotiates between existing built form and the intended future character of the local area.		
	The built form and scale of the proposal is appropriate		
Recommendation	None		
Principle 4 - Functionality and build quality	Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life-cycle.		
	The planning is generally functional, and the spaces are well arranged.		
	However, the location of the escape stair results in a negative outcome on the ground floor foyer arrangement.		
Recommendation	Explore the potential, subject to safety compliance, to delete the escape stair to free up the ground floor entry sequence.		
Principle 5 -	Good design optimises the sustainability of the built environment, delivering positive		
Sustainability	environmental, social and economic outcomes.		
De a como o detico	Not discussed		
Recommendation	 Consider appointing an ESD professional to assist with developing a coherent and effective ESD design strategy. 		
Principle 6 - Amenity	Good design optimises internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.		
	 The Panel do not support cot rooms or rooms used for sleeping that do not include direct access, by way of window openings, to natural light, ventilation, view or vista. A childcare facility is, for many children, their first experience of occupying a public building. As such it is essential that the fundamentals of natural light, ventilation, view and vista be successfully provided for in all occupied zones including cot rooms and sleeping areas. Borrowed light and/or ventilation is not considered appropriate. Childcare centre awnings - pergola structures proposed may not provide adequate 		
	shade.		
Recommendation	Consider incorporating openable windows to all habitable rooms including cot rooms and sleeping rooms.		
Principle 7 - Legibility	Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.		
	 The childcare entry is partially obscured from view by the location of the escape stair. Access to the 'gallery' space from the foyer appears unnecessarily convoluted. The fencing to the east of the childcare facility would benefit from further design attention including lowering portions of the wall or adding some visual permeability 		
Recommendation	 Consider planning strategies that mitigate the visual impact of the escape stair on the childcare entry and intuitive visual connectivity between the foyer and the gallery space. Further consideration of the fencing to the east of the childcare facility. 		



(Thursday October 28th 2021)

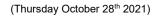
Principle 8 - Safety	Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.
	The proposal offers adequate passive surveillance.
Recommendation	None
Principle 9 - Community	Good design responds to local community needs as well as the wider social context, providing environments that support a diverse range of people and facilitate social interaction.
	The proposed use provides and important and valued community focused use
Recommendation	None
Principle 10 Aesthetics	Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.
	Visually distinctive and contemporary aesthetic incorporating deep reveals and an appropriate palette of materials, colours and textures. As the design develops the proposal has the capacity to contribute in a very positive way to the context and character of the area.
Recommendation	Some further consideration of the southern elevation and the extent and height of the eastern wall is invited.
Vov	The Denel are generally supporting Haussyer further consideration and justification for

Key	The Panel are generally supportive. However, further consideration and justification for
issues/recommendations	deviation from the guidelines is sought. The Panel understand the constraints described at
	the meeting but remain disappointed that the proposed built form does not address
	Joondalup Drive or facilitate a direct pedestrian connection through to the POS.
	Joondalup Drive or facilitate a direct pedestrian connection through to the POS.

Design Review progress					
Supported	· •				
Pending further attention					
Not yet supported					
Yet to be addressed					
	DR1	DR2	DR3		
Principle 1 - Context and character					
Principle 2 - Landscape quality					
Principle 3 - Built form and scale					
Principle 4 - Functionality and build quality					
Principle 5 - Sustainability					
Principle 6 - Amenity					
Principle 7 - Legibility					
Principle 8 - Safety					
Principle 9 - Community					
Principle 10 - Aesthetics					

Signed by Chairperson – (Dominic Snellgrove) 29 October 2021

(Dominic Snellgrove) Chairperson, Design Review Panel, City of Wanneroo





5. Next Meeting:

Meeting Date; 25 November 2021 TBC

6. Meeting Closed:

The meeting closed at 3:00pm.



Lot 2495 (7) Cheriton Dr, Carramar Proposed Commercial Development

PARKING ASSESSMENT REPORT









Prepared for:

FRP Developments Pty Ltd

December 2022

Lot 2495 (7) Cheriton Dr, Carramar

Prepared for: FRP Developments Pty Ltd

Prepared by: Paul Ghantous

Date: 6 December 2022

Project number: U22.133

Version control

Version No.	Date	Prepared by	Revision description	Issued to
U22.133.r01	30/11/22	Paul Ghantous	DRAFT	Planning Solutions
U22.133.r01a	U22.133.r01a 06/12/22 Paul G		FINAL	Planning Solutions



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1 Introduction

This Parking Assessment Report has been prepared by Urbii on behalf of FRP Developments Pty Ltd with regards to the proposed commercial development, located at Lot 2495 (7) Cheriton Dr, Carramar.

The subject site is located at the north-west corner of Joondalup Drive and Cheriton Drive, as shown in Figure 1. The site presently accommodates Carramar Village (Figure 2), which is a local neighbourhood shopping centre. The Carramar Community Centre is located immediately north of the shopping centre with integrated vehicle circulation and parking.

A mixed-use commercial development is proposed to be constructed on the southern corner of the site. The proposed development includes a child care centre and recreational facility (gym). The development footprint is located within the shopping centre car park and therefore there will be a net reduction in car parking.

The City of Wanneroo has requested that a parking study be undertaken to assess the impact of the proposed development on car parking.

Urbii has been engaged to undertake an independent parking assessment of the shopping centre site and to assess if car parking supply will be satisfactory should the proposed development be approved and constructed.

The parking assessment methodology, results and analysis are documented in this report.











Figure 1: Subject site location



Figure 2: Subject site use

2 Existing site description

Carramar Village Shopping Centre has the following general hours of operation:

Mon-Fri: 8am to 9pm.

Sat: 8am to 5pm.

Sun: 11am to 5pm.

Individual tenant trading hours may vary. The main anchor tenant is Woolworths with BWS. A range of other tenancies are currently active including food, a gym, dentist, pharmacy, nails and beauty. The mix of tenancies is typical for a local neighbourhood centre. Urbii staff observed that most of the tenancies are occupied and operating. Therefore the surveyed parking is a good representation of the existing centre parking demand.









3 Parking supply

The primary parking study area was divided into three zones, marked A to C in Figure 3. Zone A includes car parking associated with the Carramar Community Centre. It was decided to include Carramar Community Centre parking in the survey, as visitors to the shopping centre could potentially be also visiting the community centre, and vice versa. The location of the community centre adjacent to the shopping centre and integration of car parking and access is a common arrangement observed in local neighbourhood centres. This improves convenience and promotes the efficient use of car parking.

Traffic associated with the shopping centre may also potentially park in the car park north of Rawlinna Parkway, through reciprocal parking. This car park was surveyed for informational purposes only, and not included in the parking impact assessment. The car park is marked as Zone D.

A total of 381 parking spaces are provided within the core study area (Zones A-C). The supply of parking recorded within each zone is detailed in Table 1. Another potential 45 bays are available for reciprocal parking in Zone D.



Figure 3: Parking study area and survey zones







Table 1: Surveyed parking supply

Existing Parking Supply						
A B C TOTAL						
Shopping centre (103) +						
Community centre (51) =	206	21	381			
Total 154						

4 Parking demand

4.1 Surveyed existing parking demand

A parking utilisation survey was undertaken to establish the existing (baseline) parking demand at the shopping centre and community centre. The survey was undertaken on four days over a two-week period in November:

- Thurs 17 & 24 November 2022 between 14:00 and 19:00.
- Sat 19 & 26 November 2022 between 10:00 and 15:00.

Parking utilisation was recorded in 30-minute intervals for each of the survey Zones (A-C). As detailed in Figures 4 & 5, the peak parking demand on Thursday (averaged over the two survey days) was 155 bays at 16:00.

As detailed in Figures 6 & 7, a similar peak parking demand was recorded on Saturday (averaged over two survey days), with peak parking demand of 154 bays recorded at 12:00.

Peak utilisation of around 40% was recorded on both Thursday and Saturday, with approximately 226 vacant bays available. The detailed survey outputs are provided in Appendix B.

4.2 Consideration of seasonal adjustment factors

The RTA NSW *Guide to Traffic Generating Developments* was referenced to assess the seasonal variation in shopping centre traffic generation. As detailed in Table 2, shopping centre traffic is thought to be around 8% higher than average in November, with December being the busiest month. No seasonal adjustment of survey data is considered necessary as the parking survey results have captured higher than average parking demand.

Table 2: Seasonal variation in shopping centre traffic

Month	Variation (compared with average)	Month	Variation % (compared with average)	
January	0.89	July	1.03	
February	0.87	August	1.01	
March	0.97	September	0.96	
April	0.96	October	0.98	
May	1.01	November	1.08	
June	0.97	December	1.28	

Source: RTA NSW Guide to Traffic Generating Developments







Figure 4: Thursday average parking demand profile

Dov	Time	Existing Parking Demand				
Day	Time	A	В	С	TOTAL	
Thur	14:00	49	71	4	124	
Thur	14:30	47	74	9	130	
Thur	15:00	59	71	13	143	
Thur	15:30	53	74	4	131	
Thur	16:00	68	84	3	155	
Thur	16:30	62	76	3	141	
Thur	17:00	66	78	3	147	
Thur	17:30	51	74	1	126	
Thur	18:00	47	79	1	127	
Thur	18:30	37	72	2	111	
Thur	19:00	38	53	2	93	

Figure 5: Thursday average percentage occupancy

Dov	Time	Existing Parking Demand			
Day	Time	Α	В	С	TOTAL
Thur	14:00	32%	34%	19%	33%
Thur	14:30	31%	36%	43%	34%
Thur	15:00	38%	34%	62%	38%
Thur	15:30	34%	36%	19%	34%
Thur	16:00	44%	41%	14%	41%
Thur	16:30	40%	37%	14%	37%
Thur	17:00	43%	38%	14%	39%
Thur	17:30	33%	36%	5%	33%
Thur	18:00	31%	38%	5%	33%
Thur	18:30	24%	35%	10%	29%
Thur	19:00	25%	26%	10%	24%

Figure 6: Saturday average parking demand profile

Dov	Time	Existing Parking Demand				
Day	Time	Α	В	С	TOTAL	
Sat	10:00	45	81	4	130	
Sat	10:30	66	78	3	147	
Sat	11:00	60	80	4	144	
Sat	11:30	64	84	4	152	
Sat	12:00	64	85	5	154	
Sat	12:30	54	74	2	130	
Sat	13:00	48	70	3	121	
Sat	13:30	51	74	3	128	
Sat	14:00	54	78	3	135	
Sat	14:30	51	67	3	121	
Sat	15:00	44	53	3	100	

Figure 7: Saturday average percentage occupancy

Day	Time	Existing Parking Demand				
Day	Time	A	В	С	TOTAL	
Sat	10:00	29%	39%	19%	34%	
Sat	10:30	43%	38%	14%	39%	
Sat	11:00	39%	39%	19%	38%	
Sat	11:30	42%	41%	19%	40%	
Sat	12:00	42%	41%	24%	40%	
Sat	12:30	35%	36%	10%	34%	
Sat	13:00	31%	34%	14%	32%	
Sat	13:30	33%	36%	14%	34%	
Sat	14:00	35%	38%	14%	35%	
Sat	14:30	33%	33%	14%	32%	
Sat	15:00	29%	26%	14%	26%	







4.3 Proposed development parking demand

Reference was made to the following sources of information to assist with estimating the parking demand of the proposed development:

- Institute of Transport Engineers (ITE) Parking Generation Manual.
- Roads and Maritime Services Validation trip generation surveys child care centres analysis report (RTA).

The relevant parking generation rates for the proposed development uses are detailed in Table 3. The calculated peak parking demand for the different land uses is presented in Table 4.

Table 3: Parking generation rates

Proposed Use	Peak Demand Rate	Source
Recreation (Gym)	5.1 Bays per 100 sqm GFA	ITE
Child care centre	0.22 Bays per place	RTA

Table 4: Peak parking generation for proposed land uses

Land use	Quantity	Peak Parking Demand
Recreation (Gym)	400 (m2)	21 bays
Child care centre	82 (places)	19 bays

The gym is proposed to operate 24 hours per day, seven days per week. The ITE *Parking Generation Manual* provides the percentage distribution of parking demand for every hour of the day for gyms.

The child care centre is proposed to operate from 6:30am to 6:30pm, Monday to Friday. The RTA NSW *Guide to Traffic Generating Developments* indicates that pre-school centres typically have weekday peaks in the periods 8:00am to 9:00am and 2:30pm to 4:00pm. A temporal parking demand distribution was estimated based on this information.

As detailed in Table 5, the peak parking demand for the proposed development is estimated to occur at 5:00pm on weekdays. A combined peak parking demand of 37 bays is estimated for the gym and child care centre at this time.

Table 5: Proposed development hourly parking demand profile

			Proposed Development Parking Demand Distribution							
Day	Time	Gym	Child Care Centre	Gym	Child Care Centre	Total Development Demand				
Thur	14:00	36%	80%	8	16	24				
Thur	14:30	38%	100%	8	19	27				
Thur	15:00	41%	100%	9	19	28				
Thur	15:30	55%	100%	12	19	31				
Thur	16:00	69%	100%	15	19	34				
Thur	16:30	83%	90%	18	18	36				
Thur	17:00	96%	80%	21	16	37				
Thur	17:30	98%	80%	21	16	37				
Thur	18:00	100%	50%	21	10	31				
Thur	18:30	93%	0%	20	0	20				
Thur	19:00	85%	0%	18	0	18				
Sat	10:00	100%	0%	21	0	21				
Sat	10:30	98%	0%	21	0	21				
Sat	11:00	97%	0%	21	0	21				
Sat	11:30	88%	0%	19	0	19				
Sat	12:00	79%	0%	17	0	17				
Sat	12:30	80%	0%	17	0	17				
Sat	13:00	81%	0%	18	0	18				
Sat	13:30	77%	0%	17	0	17				
Sat	14:00	73%	0%	16	0	16				
Sat	14:30	72%	0%	16	0	16				
Sat	15:00	71%	0%	15	0	15				









5 Parking impact assessment

The post-development parking supply and demand assessment for the shopping and community centres is detailed in Table 6. The peak post-development parking demand for the study area (including the proposed development) is 189 bays, expected to occur on weekdays at around 16:00. This analysis assumes that the post development parking supply will be reduced to 361 bays including the community centre parking. Therefore a peak occupancy of 52% is expected, with a surplus of 172 bays.

The scale of the expected parking surplus can comfortably accommodate seasonal variations in demand. For efficient shopping centre traffic flow and turnover, a maximum parking occupancy of around 85% to 90% is desirable. The post-development peak parking occupancy is well below the desirable threshold.

The survey results also indicate that the shopping centre is not reliant on the community centre for car parking. The surveyed parking demand for both the shopping centre and community centre combined can be accommodated within the post-development shopping centre car park.

Based on this analysis, no parking issues are expected because of the proposed development. The post-development parking demand can be accommodated within the shopping centre car park and no reciprocal parking with the nearby car park in Zone D required.

Table 6: Post-development parking supply and demand analysis

Day	Time	Existing Demand	Proposed Development Demand	Total Demand	Post Development Supply	Expected Surplus
Thur	14:00	124	24	148	361	213
Thur	14:30	130	27	157	361	204
Thur	15:00	143	28	171	361	190
Thur	15:30	131	31	162	361	199
Thur	16:00	155	34	189	361	172
Thur	16:30	141	36	177	361	184
Thur	17:00	147	37	184	361	177
Thur	17:30	126	37	163	361	198
Thur	18:00	127	31	158	361	203
Thur	18:30	111	20	131	361	230
Thur	19:00	93	18	111	361	250
Sat	10:00	130	21	151	361	210
Sat	10:30	147	21	168	361	193
Sat	11:00	144	21	165	361	196
Sat	11:30	152	19	171	361	190
Sat	12:00	154	17	171	361	190
Sat	12:30	130	17	147	361	214
Sat	13:00	121	18	139	361	222
Sat	13:30	128	17	145	361	216
Sat	14:00	135	16	151	361	210
Sat	14:30	121	16	137	361	224
Sat	15:00	100	15	115	361	246









6 Conclusion

This Parking Assessment Report has been prepared by Urbii on behalf of FRP Developments Pty Ltd with regards to the proposed commercial development, located at Lot 2495 (7) Cheriton Dr, Carramar.

The subject site is located at the north-west corner of Joondalup Drive and Cheriton Drive and presently accommodates Carramar Village, which is a local neighbourhood shopping centre. The Carramar Community Centre is located immediately north of the shopping centre with integrated vehicle circulation and parking.

A mixed-use commercial development is proposed to be constructed on the southern corner of the site. The proposed development includes a child care centre and recreational facility (gym). The development footprint is located within the shopping centre car park and therefore there will be a net reduction in car parking.

It was decided to include Carramar Community Centre parking in the survey, as visitors to the shopping centre could potentially be also visiting the community centre, and vice versa. The location of the community centre adjacent to the shopping centre and integration of car parking and access is a common arrangement observed in local neighbourhood centres. This improves convenience and promotes the efficient use of car parking.

A total of 381 parking spaces are currently provided within the shopping and community centre car parks, which will reduce to 361 spaces in the post development situation.

A parking utilisation survey was undertaken to establish the existing (baseline) parking demand for the subject site. The survey was undertaken on four days over a two-week period in November.

The peak existing parking demand is 155 bays recorded on Thursday at 16:00. The peak post-development parking demand for the site is 189 bays, also expected to occur on weekdays at around 16:00. A peak occupancy of 52% is expected, with a surplus of 172 bays.

The scale of the expected parking surplus can comfortably accommodate seasonal variations in demand. For efficient shopping centre traffic flow and turnover, a maximum parking occupancy of around 85% to 90% is desirable. The post-development peak parking occupancy is well below the desirable threshold.

The findings of the parking assessment are supportive of the proposed development.

Appendices

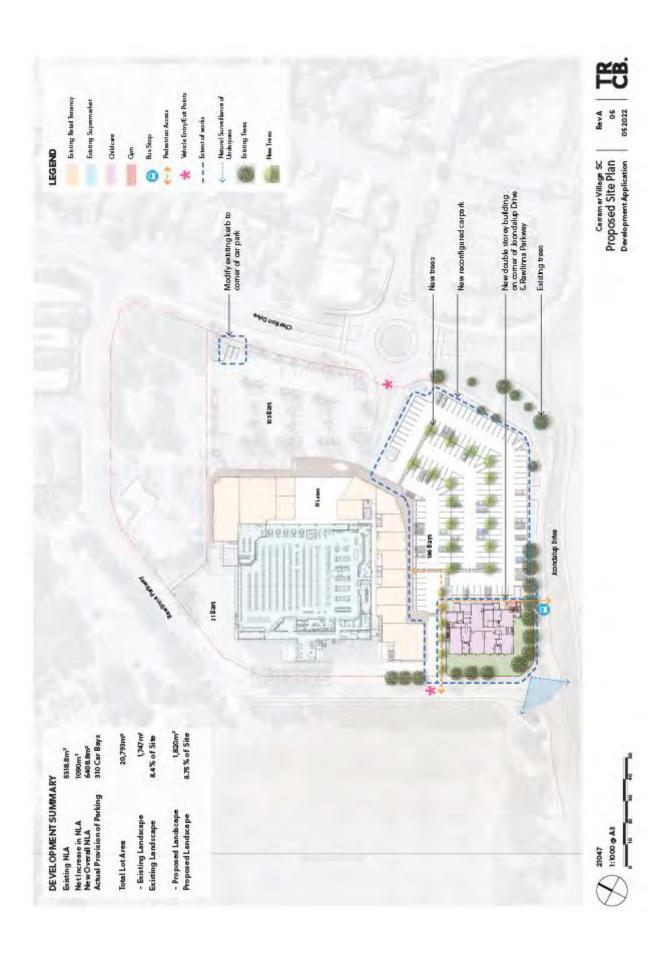
Appendix A: Proposed development plans











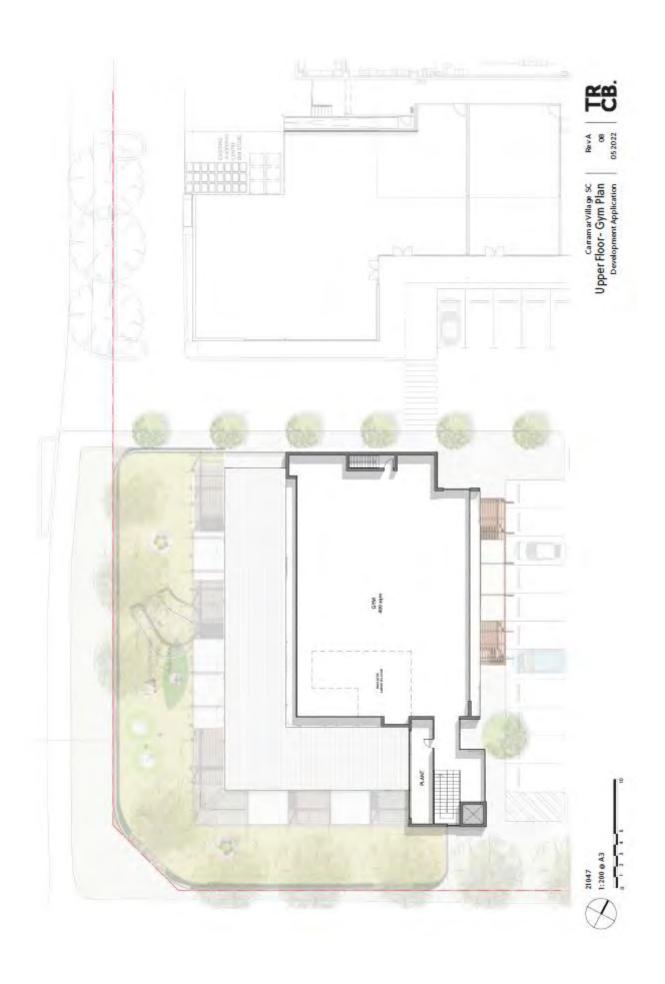












Appendix B: November 2022 parking utilisation survey results

Day Time		Existing Parking Demand				
Day	Tille	Α	В	С	TOTAL	
Thur - 17/11/22	14:00	57	72	3	132	
Thur - 17/11/22	14:30	48	76	8	132	
Thur - 17/11/22	15:00	53	70	7	130	
Thur - 17/11/22	15:30	55	80	2	137	
Thur - 17/11/22	16:00	61	82	2	145	
Thur - 17/11/22	16:30	58	76	2	136	
Thur - 17/11/22	17:00	61	88	2	151	
Thur - 17/11/22	17:30	44	74	1	119	
Thur - 17/11/22	18:00	59	79	1	139	
Thur - 17/11/22	18:30	45	73	1	119	
Thur - 17/11/22	19:00	45	45	1	91	

Dov	Time	Existing Parking Demand				
Day	Time	Α	В	С	TOTAL	
Thur - 24/11/22	14:00	41	70	5	116	
Thur - 24/11/22	14:30	45	71	9	125	
Thur - 24/11/22	15:00	65	72	18	155	
Thur - 24/11/22	15:30	51	67	5	123	
Thur - 24/11/22	16:00	75	86	4	165	
Thur - 24/11/22	16:30	66	75	3	144	
Thur - 24/11/22	17:00	70	68	3	141	
Thur - 24/11/22	17:30	57	73	1	131	
Thur - 24/11/22	18:00	35	78	1	114	
Thur - 24/11/22	18:30	29	70	2	101	
Thur - 24/11/22	19:00	30	61	3	94	

Dov	Time	Existing Parking Demand				
Day	Time	Α	ВС	B C TOTAL		
Sat - 19/11/22	10:00	37	79	2	118	
Sat - 19/11/22	10:30	68	78	1	147	
Sat - 19/11/22	11:00	60	85	1	146	
Sat - 19/11/22	11:30	67	89	1	157	
Sat - 19/11/22	12:00	63	85	3	151	
Sat - 19/11/22	12:30	46	66	1	113	
Sat - 19/11/22	13:00	41	63	2	106	
Sat - 19/11/22	13:30	44	68	3	115	
Sat - 19/11/22	14:00	54	71	3	128	
Sat - 19/11/22	14:30	56	74	4	134	
Sat - 19/11/22	15:00	46	52	3	101	









Dov	Time	Existing Parking Demand				
Day	Tille	A	В	C	TO1	ΓAL
Sat - 26/11/22	10:00	52		83	6	141
Sat - 26/11/22	10:30	63		77	4	144
Sat - 26/11/22	11:00	59		75	7	141
Sat - 26/11/22	11:30	61		78	7	146
Sat - 26/11/22	12:00	64		85	6	155
Sat - 26/11/22	12:30	62		81	2	145
Sat - 26/11/22	13:00	54		76	3	133
Sat - 26/11/22	13:30	58		79	3	140
Sat - 26/11/22	14:00	54		84	3	141
Sat - 26/11/22	14:30	45	,	59	2	106
Sat - 26/11/22	15:00	41		54	2	97

Day	Time	Parking Demand Zone D	% Occupancy Zone D
Thur	14:00	16	36%
Thur	14:30	39	87%
Thur	15:00	30	67%
Thur	15:30	9	20%
Thur	16:00	6	13%
Thur	16:30	1	2%
Thur	17:00	3	7%
Thur	17:30	5	11%
Thur	18:00	3	7%
Thur	18:30	3	7%
Thur	19:00	3	7%
Sat	10:00	21	47%
Sat	10:30	19	42%
Sat	11:00	20	44%
Sat	11:30	18	40%
Sat	12:00	15	33%
Sat	12:30	17	38%
Sat	13:00	10	22%
Sat	13:30	11	24%
Sat	14:00	12	27%
Sat	14:30	12	27%
Sat	15:00	12	27%

Results averaged over two days



Proposed Child Care Centre and Gym

Carramar Village, Carramar

Transport Impact Statement



Document history and status

Author	Revision	Approved by	Date approved	Revision type
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1 Introduction

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of FRP Capital with regard to a proposed development to be located within the existing carpark of Carramar Village Shopping Centre, Carramar in the City of Wanneroo.

The Development Application (DA) for the subject site proposes replacement of a portion of the existing carpark at the subject site with a standalone two-storey commercial building and modification of the existing carpark. The development is proposed to comprise mixed commercial land uses including a child care centre on ground floor and a gym on the first floor.

As illustrated in **Figure 1**, the subject site for the proposed development is located within the existing carpark of Carramar Village Shopping Centre and is bound by Carramar Village Shopping Centre to the north, proposed modified carpark of Carramar Village Shopping Centre to the east, Joondalup Drive to the south and Rawlinna Parkway to the west.



Figure 1: Location of the subject site

The Transport Impact Assessment Guidelines (WAPC, Vol 4 – Individual Developments, August 2016) states: "A Transport Impact Statement is required for those developments that would be likely to generate moderate volumes of traffic¹ and therefore would have a moderate overall impact on the surrounding land uses and transport networks".

Section 6.1 of Transcore's report provides details of the estimated trip generation for the proposed development. Accordingly, as the total peak hour vehicular trips are estimated to be less than 100 trips, a Transport Impact Statement is deemed appropriate for this development.

Key issues that will be addressed in this report include the traffic generation and distribution of the proposed development, access and egress movement patterns and parking.

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¹ Between 10 and 100 vehicular trips per hour

2 Proposed Development

The subject site forms part of the existing car parking area which is located to the southern side of the Carramar Village Shopping Centre adjacent to Joondalup Drive.

The proposal aims to construct a new building foot print over the portion of the existing car park through the rearrangement of existing parking layout. The new building will be located at the south western corner of the Shopping Centre building. The existing car park at the subject site currently comprises 206 car parking bays. The rearrangement of existing parking layout will provide a total of 186 bays at the subject site resulting in the loss of 20 bays.

The proposed development comprises a two-story building which will accommodate a child care centre on the ground floor and a gym on the first floor. The child care centre would accommodate up to 82 children with 16 staff. The total GFA of the gym is approximately 400 m² with 5 staff.

Further, the proposal also includes modifications of the existing kerbs to the southernmost shopfronts and northeast corner of the existing Shopping Centre.

As part of the proposed development, the vehicular access and egress for the proposed development is facilitated via the existing access locations on Cheriton Drive and Rawlinna Parkway which connect to the carpark of existing Shopping Centre and the proposed development.

Pedestrian access to the proposed development is available from the existing footpath network on Joondalup Drive and Rawlinna Parkway abutting the subject site.

According to the information provided, it is anticipated to expand the existing bin storage area of the Shopping Centre which is located adjacent to the existing Shopping Centre's loading dock. Waste collection and deliveries for the proposed development will be accommodated within the site which will also take place from the existing loading dock as per existing arrangements of the Shopping Centre.

The proposed development plan is provided in **Appendix A.**

3 Vehicle Access and Parking

3.1 Access

As part of the proposed development, the vehicular access and egress for the proposed development is facilitated via the existing access locations on Cheriton Drive and Rawlinna Parkway which connect to the carpark of existing Shopping Centre and the proposed development.

Figure 2 shows the locations of the existing crossovers on Cheriton Drive and Rawlinna Parkway for the subject site.

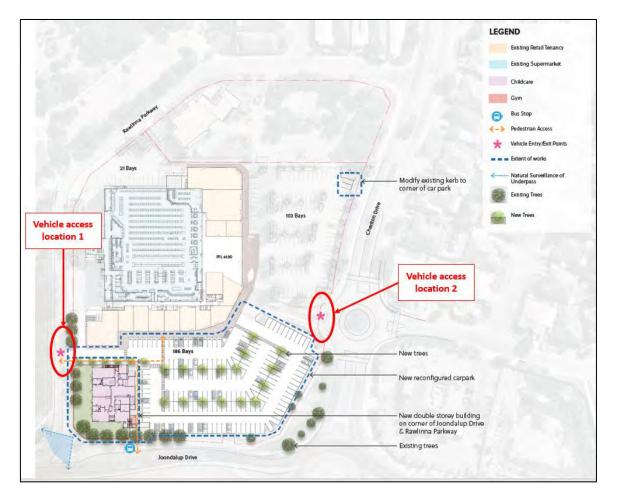


Figure 2: Crossovers Locations

3.2 Parking Supply

The Development Application (DA) for the subject site proposes replacement of a portion of the existing carpark at the subject site with a two-storey commercial building and modification of the existing carpark.

The existing car park at the subject site currently comprises 206 car parking bays. The rearrangement of existing parking layout will provide a total of 186 bays resulting in the loss of 20 bays.

4 Provision for Service Vehicles

According to the information provided, it is anticipated that the existing bin storage area of the Shopping Centre will be expanded adjacent to the existing Shopping Centre's loading dock. Waste collection and deliveries for the proposed development will be accommodated within the site which will also take place from the existing loading dock as per existing arrangements of the Shopping Centre.

It is also anticipated that delivery and service trucks will service the tenancies outside peak operating hours of the existing Shopping Centre and the proposed development for the convenient and safe manoeuvring of the trucks within the site.

5 Hours of Operation

The proposed development comprises a child care centre and a gym.

The child care centre is proposed to operate during weekdays between 6:30AM to 6:30PM.

The gym will operate 24 hours a day 7 days a week.

6 Daily Traffic Volumes and Vehicle Types

6.1 Proposed Development Trip Generation

The proposed development comprises a child care centre and a gym. The trip generation for the proposed development is as follows:

Child Care Centre (CCC)

In order to establish an accurate traffic generation rate for the proposed child care centre, traffic count surveys undertaken by Transcore at similar centres in the Perth metropolitan area were sourced.

Discussions with the respective centre managers revealed that the peak drop-offs and pick-ups for each of these centres occur between the hours of 7:00AM and 3:00PM-6:00PM.

From the total number of children at each of the centres on the surveyed days, the following average generation rates were established for the morning and afternoon surveyed periods:

- ≠ 7:00AM-10:00AM: 1.58 trips per child (52% in / 48% out); and,
- **♣** 3:00PM-6:00PM: 1.67 trips per child (47% in / 53% out).

From this information, the traffic generation rate for the combined period of 7:00AM-10:00AM and 3:00PM-6:00PM was calculated as 3.25 trips per child. To convert this figure to a daily generation rate, this figure was increased to 3.5 trips per child to account for any trips outside of the surveyed times. It was assumed that the daily in and out split for vehicle trips was 50/50.

Furthermore, the following peak hour generation rates were established from the surveys for the Child Care Centres:

- ♣ AM peak hour: 8:00AM 9:00AM: 0.75 trips per child (52% in / 48% out);
 and,
- PM peak hour: 3:00PM 4:00PM: 0.60 trips per child (55% in/ 45% out);

Comparison of the six-hour generation rates and the peak hour generation rates confirms that the distribution of traffic from these centres is spread over the peak periods and that full concentration of traffic does not occur in the peak hour. The AM peak hour represents 47% of the 3-hour AM peak period traffic generation and the typical school PM and road network PM peak hours represent 36% and 29% of the 3-hour PM peak period traffic generation, respectively. As such, childcare centres operate quite differently to schools as their peak period is spread out.

Accordingly, the following number of trips was estimated for the proposed child care centre, assuming a maximum scenario of 82 children being present (i.e., centre at full capacity):

- ♣ AM peak hour: 62 trips generated (32 in / 30 out);
- ♣ PM peak hour: 49 trips generated (27 in / 22 out); and,
- **♣** Daily traffic generation: 288 trips generated (144 in / 144 out).

<u>Gym</u>

The traffic volumes likely to be generated by the proposed gym development have been estimated in accordance with the ITE Trip Generation Manual (11th Edition) which provides peak hour trip rates and directional traffic split for different types of land uses.

Accordingly, the trip generation rates used to estimate the traffic generation of proposed gym are:

Health/Fitness Club (492) - 1000 Sq Ft GFA

- Weekday PM peak hour: 3.45vph per 1000sqft. GFA/0.929 = 3.71/100m² GFA

The total GFA of the gym is 400m². Accordingly, it is estimated that the traffic generations of proposed gym are

- **♣** Weekday AM peak hour: (1.41x400/100m2 GFA) = 6vph
- ➡ Weekday PM peak hour: (3.71x400/100m2 GFA) = 15vph

For commercial development of various types, the peak hour traffic generation is typically in the order of 10% to 20% of total daily traffic generation. This would indicate daily traffic generation in the range of 5 to 10 times the peak traffic generation. Assuming conservatively that daily traffic generation is 10 times the afternoon peak hour traffic generation an upper estimate of daily trip generation of the gym would be 150 (15x10 = 150) trips.

Accordingly, the proposed gym would conservatively generate a total of approximately 150 vehicular trips per regular weekday with about 6 trips during typical weekday AM peak hour and 15 trips during the typical weekday PM peak hour. These totals include both inbound and outbound vehicle movements.

The traffic generation and peak hour split detailed in **Table 1** was based on the following directional split assumptions for peak hour periods referenced from ITE Trip Generation Manual:

- ♣ Morning (AM) peak split estimated at 46%/54% for inbound/outbound trips associated with health/ fitness club; and,
- ♣ Afternoon (PM) peak split estimated at 52%/48%, for inbound/outbound trips associated with health/ fitness club.

Table 1. Estimated peak hour trips for the proposed gym

Land Use	AM Peak			PM Peak		
	Traffic Split	In	Out	Traffic Split	In	Out
Health/ Fitness Club	46% in	3		52% in	8	
(492)	54% out		3	48% out		7
Total		6			15	

Therefore, the proposed development (CCC + Gym) would generate a total of approximately **438**vpd with about **68**vph and **64**vph during AM and PM peak periods respectively. These totals include both inbound and outbound vehicle movements.

6.2 Traffic Flow

Based on the general spatial distribution of existing residential developments in the immediate area, permeability of the local road network and the assumption that all traffic attracted to the proposed development would arrive/depart via Rawlinna Parkway and Cheriton Drive access locations, the traffic distribution adopted for this analysis is as follows:

Inbound Traffic

Access Location 1

- 4 10% from the west of Joondalup Drive via Rawlinna Parkway; and,
- **↓** 10% from the north of Rawlinna Parkway.

Access Location 2

- **♣** 15% from the north of Cheriton Drive;
- **♣** 5% from the east of Innesvale Way; and,
- **♣** 60% from the east of Joondalup Drive via Cheriton Drive.

Outbound Traffic

Access Location 1

↓ 10% to the north of Rawlinna Parkway.

Access Location 2

- ↓ 15% to the north of Cheriton Drive;
- **♣** 5% to the east of Innesvale Way;
- ♣ 10% to the west of Joondalup Drive via Cheriton Drive; and,
- **♣** 60% to the east of Joondalup Drive via Cheriton Drive.

Figure 3 illustrates trip generation and traffic distribution over the local road network for the proposed development.

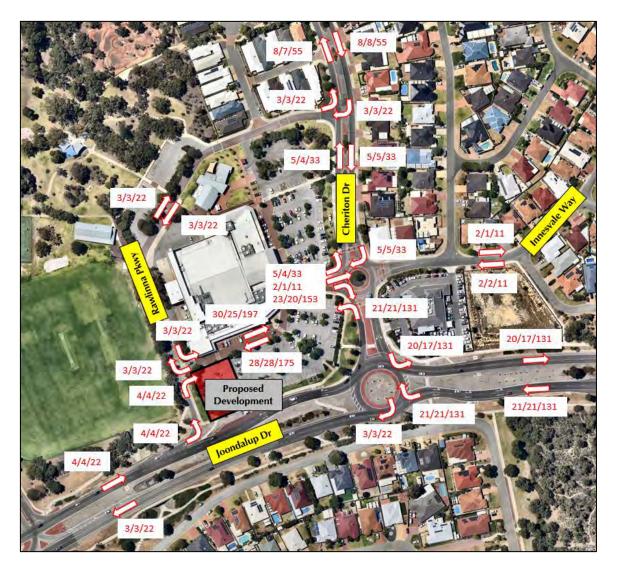


Figure 3: Estimated traffic movements for the subject site AM Peak/PM Peak/Total daily trips

6.3 Impact on Surrounding Roads

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

"As a general guide, an increase in traffic of less than 10 per cent of capacity would not normally be likely to have a material impact on any particular section of road but increases over 10 per cent may. All sections of road with an increase greater than 10 per cent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 per cent of capacity. Therefore, any section of road where development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis."

It is clear that the traffic increase from the proposed development would be significantly less than the critical threshold (100vph per lane) with the most pronounced traffic increases being 41vph on Joondalup Drive (east of the subject site) during the morning peak hour.

As detailed in **Section 6.1**, the proposed development will not increase traffic on any lanes on the surrounding road network by more than 100vph, therefore the impact of the development traffic on the surrounding road network will not be significant and does not require further assessment.

7 Traffic Management on the Frontage Streets

Rawlinna Parkway is constructed as a single carriageway with 6.0m wide two-way lanes to the north and 4.0m wide one-way lane to the south of the existing Shopping Centre crossover on Rawlinna Parkway. It features pedestrian paths on both sides of the road.

It is classified as an *Access Road* in the Main Roads WA Functional Road Hierarchy and operates under the default built up speed limit of 50km/h.



Figure 4: Southbound view along Rawlinna Parkway

Joondalup Drive, north of the subject site, is constructed as a dual divided carriageway with landscaped median and shared paths and on road cycle lanes on both sides of the road in the immediate vicinity of the subject site as shown in **Figure 5**.

Joondalup Drive is classified as *Distributor A* in the Main Roads WA Metropolitan Functional Road Hierarchy and operates under the speed limit of 70km/h.

Traffic count data obtained from Main Roads WA indicates that Joondalup Drive (East of Wanneroo Road) carried approximately 27,646 vehicles on a typical weekday in 2021/22. The morning and afternoon peaks are between 8:00am to 9:00am and 4:00pm to 5:00pm with traffic volumes of 2,204vph and 2,445vph respectively.



Figure 5: Westbound view along Joondalup Drive

Cheriton Drive is a two-way divided road with landscaped median at the centre in the vicinity of the subject site. Pedestrian paths are available on both sides of the road as shown in **Figure 6**. It forms a roundabout intersection with Joondalup Drive to the south.

Cheriton Drive is classified as *Local Distributor* in the Main Road WA Functional Road Hierarchy and operates under the default built up speed limit of 50km/h.



Figure 6: Northbound view along Cheriton Drive

8 Public Transport Access

According to the current Transperth bus network map, the subject site is served by Transperth bus route 467 which traverses along Joondalup Drive adjacent to the subject site. The nearest bus stop is located on Joondalup Drive fronting the subject site. The nearest bus stop is accessible from the subject site via existing footpaths in the vicinity of the subject site.

This bus routes provides links to Whitfords Train Station, Wanneroo Shopping Centre, Carramar Village Shopping Centre, Lakeside Joondalup Shopping Centre and Joondalup Train Station.

The public transport services available in the vicinity of the subject site are illustrated in the relevant Transporth service map (see **Figure 7**).

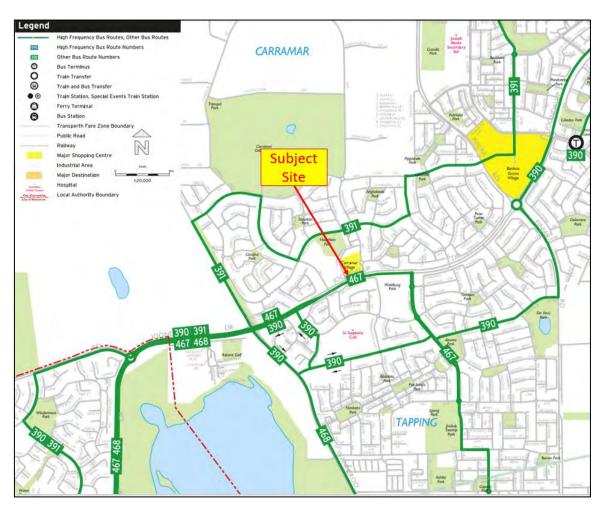


Figure 7: Public transport services (Transperth Maps)

9 Pedestrian Access

Pedestrian access to the proposed development is available directly from the existing path network on Rawlinna Parkway, Joondalup Drive and Cheriton Drive abutting the subject site.

10 Cycle Access

According to the current Department of Transport Bike Maps, the subject site has direct access to the existing bike path network within the locality via the "bicycle lane or sealed shoulder" on Joondalup Drive, shared paths on Joondalup Drive and Cheriton Drive. Further, western side of Cheriton Drive is classified as a good road riding environment.

Figure 8 shows the existing cyclist connectivity to the subject site.

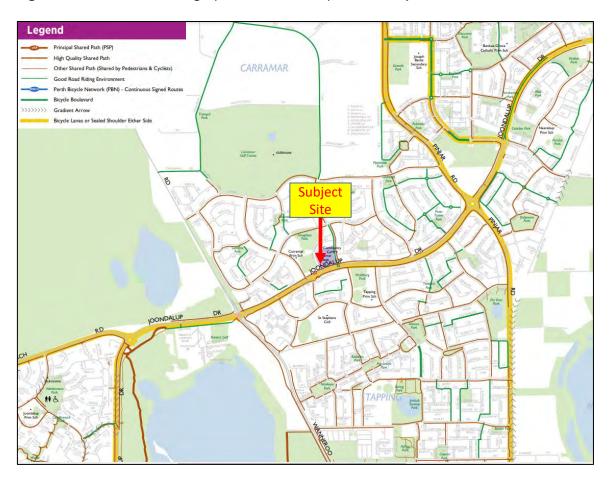


Figure 8: Extract from Perth Bicycle Network (Department of Transport)

11 Site Specific Issues

No site-specific issues have been identified for the proposed development. The impact on the parking numbers as a result of the proposed development will be addressed in the planning report.

12 Safety Issues

No particular safety issues have been identified for the proposed development.

13 Conclusions

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of FRP Capital with regard to a proposed development to be located within the existing carpark of Carramar Village Shopping Centre, Carramar in the City of Wanneroo.

The Development Application (DA) for the subject site proposes replacement of a portion of the existing carpark at the subject site with a two-storey commercial building and modification of the existing carpark. The development is proposed to comprise a child care centre on ground floor and a gym on the first floor. The child care centre would accommodate up to 82 children with 16 staff. The total GFA of the gym is approximately 400 m² with 5 staff.

The newly building will be located at the south western corner of the Shopping Centre building. The existing car park at the subject site currently comprises 206 car parking bays. The rearrangement of existing parking layout will provide a total of 186 bays at the subject site resulting in the loss of 20 bays.

Waste collection and deliveries for the proposed development will be accommodated within the shopping centre site which and will take place at the existing loading dock as per existing arrangements of the Shopping Centre.

The traffic analysis undertaken in this report shows that the traffic generation of the proposed development is relatively low and would not have any significant impact on the surrounding road network.

The site features good connectivity with the existing road, cyclist network and public transport coverage through the existing bus service operating in close proximity of the site.

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

Appendix A

PROPOSED DEVELOPMENT PLANS

