

# TRANSPORT IMPACT STATEMENT

7 Cushing Road

Alkimos

November 2021

Rev A



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**Appendix 2** - Transport Planning and Traffic Plans

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## 1. Executive Summary

### Site Context

- The project location is No. 7 (Lot 2035) Cushing Road, Alkimos.
- The site is located within the North Alkimos Structure Plan area zoned Mixed/Commercial R30-R80 and is currently vacant. It forms part of a larger Alkimos Eglinton District Structure Plan area.
- Significant changes to transportation networks are planned in the area, some of which are:
  - Construction on Mitchell Freeway Extension east of the subject site
  - Construction of Yanchep Rail Line extension west of the subject site
  - Several new roads surrounding the subject site, one of the most important ones being the future Alkimos Drive which will provide a connection to Mitchell Freeway
- More details on this are provided in Section 2.5
- The subject lot is currently vacant. The subject site will share the crossover with the adjacent Lot 2034, which is an existing childcare centre. Two childcare centres will be managed by the same operator.
- The proposed development plans show an additional Childcare centre facility, with a capacity for 51 children and 8 staff members.

### Technical Findings

- The proposed development is expected to generate up to additional 220 vehicular trips per day, 41 vehicular trips in the morning peak and 36 vehicular trips in the evening peak hour. According to the WAPC Guidelines, this is considered a moderate impact on the transport network.
- KCTT believe that the surrounding existing network and the planned upgrades in the vicinity will successfully absorb generated traffic.

### Relationship with Policies

- The plans for the proposed development show a total of 17 parking bays.
- The City of Wanneroo's policies stipulate a requirement of 17 parking bays, thereby leading to a nominal shortfall of 3 parking bays. However, given the nature of the proposed land use and site context, the following points inform KCTT's opinion that the proposed parking can meet the development requirements:
  - Four on-street bays are fronting the proposed development to the south on Bainbridge Avenue.
  - Additional on-street parking ( $\approx 100$  bays) is available within a 400m radius on Bainbridge Avenue, Coram Street, Decatur Street, Barney Road, Magellan Road.
  - The capacity of the childcare centre is 51 children. It is highly unlikely that the childcare centre would operate at the maximum capacity at all times.
  - The proposed development will provide 8 bicycle parking bays.
  - According to RTA NSW Guide to Traffic Generating Developments, the average dwell time for vehicles during drop off is 6.8 minutes
  - For further justification, KCTT have assumed a more conservative 10 minutes of dwell time and that all 51 children are in attendance, driven to the childcare, and there are no siblings.

Based on the above, 1 parking bay could accommodate 6 vehicles in an hour and 12 vehicles in the 2-hour period for Childcare centres. Therefore, 5 drop-off parking bays would be sufficient for catering all parents' parking requirements in a 2-hour peak.

- With the above in mind, 6 on-site drop-off bays will be more than sufficient for all parents' parking requirements (assuming that 8 bays are allocated to staff members as shown on layout plans).
  - It is expected that some staff members could possibly cycle/walk or get dropped off to work, therefore not requiring a parking bay for the duration of their shift. Not all staff members will work at one time.
  - Parents who live in vicinity of the proposed development could drop-off their children on-foot or park near the Northshore Christian Grammar School if they have older children who attend it.
- KCTT believes that the childcare centre's pick up / drop off function can be effectively catered for on premises and available on-street parking; therefore, it is highly unlikely that this shortfall would have a negative impact.
  - The plans for the proposed development show 8 bicycle parking spaces (4 two-sided racks) in order to promote alternative transportation modes.
  - Building Code of Australia ACROD Provision – the proposed development meets the requirement for 1 ACROD bay.

## **Conclusion**

- A childcare centre with a capacity for 51 children is proposed.
- As stated above, the additional traffic attracted to the subject site is expected to increase by a maximum of 220 vehicular trips per day and 41 vehicular trips in the peak hour.
- Cushing Road is classified as Access Road as per MRWA classification with the maximum desirable volume of 3,000 vehicles per day. Currently, there are no traffic counts available. However, this is still an undeveloped area, with this section of Cushing Road serving a maximum of ten residential units and the subject 2 childcare centres. This equates to a traffic volume less than 1,000 VPD.
- Therefore, Cushing Road would remain well under the maximum desirable traffic volume for Access Roads.
- Other surrounding roads would absorb significantly less traffic than Cushing Road, moreover, the traffic would be dispersed so that the impact can be considered negligible.
- In summary, KCTT believes that the proposed development will not negatively impact the surrounding road network.

## 2. Transport Impact Statement

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### 2.1 Location

Lot Number	Lot 2035
Street Number	No. 7
Road Name	Cushing Road
Suburb	Alkimos
Description of Site	The subject lot is currently vacant. The subject site will share the crossover with the adjacent Lot 2034, which is an existing childcare centre. The proposed development plans show an additional Childcare centre facility, with a capacity for 51 children and 8 staff members.

### 2.2 Technical Literature Used

Local Government Authority	City of Wanneroo
Type of Development	Individual Development - Childcare Centre
Is the NSW RTA Guide to Traffic Generating Developments Version 2.2 October 2002 (referenced to determine trip generation/attraction rates for various land uses) referenced?	YES
Which WAPC Transport Impact Assessment Guideline should be referenced?	Volume 4 - Individual Developments
Are there applicable LGA schemes for this type of development?	YES
<i>If YES, Nominate:</i>	
Name and Number of Scheme	District Planning Scheme No. 2
Are Austroads documents referenced?	YES
Are there applicable DAP schemes for this type of development?	YES
<i>If YES, Nominate:</i>	
Number and Name of Scheme	North Alkimos - Local Development Plan No. 21

## 2.3 Land Uses

Are there any existing Land Uses NO

*If YES, Nominate:*

### Proposed Land Uses

How many types of land uses are proposed? One (1)  
 Nominate land use type and yield Childcare Centre - 51 children, 8 staff members

Are the proposed land uses complementary with the surrounding land-uses? YES

## 2.4 Local Road Network Information

How many roads are front the subject site? Three (3)

*Name of Roads Fronting Subject Site / Road Classification and Description:*

### Road 1

<b>Road Name</b>	Cushing Road
Number of Lanes	two way, one lane (no linemarking), undivided
Road Reservation Width	approximately 9m
Road Pavement Width	approximately 5.5m
Classification	N/A
Speed Limit	N/A
Bus Route	NO
On-street parking	NO

### Road 2

<b>Road Name</b>	Bainbridge Avenue
Number of Lanes	two way, one lane (no linemarking), undivided
Road Reservation Width	approximately 18m
Road Pavement Width	approximately 6
Classification	N/A
Speed Limit	N/A
Bus Route	NO
On-street parking	YES – 2.3m parallel parking on both sides of the road reservation

### Road 3

<b>Road Name</b>	Magellan Road
Number of Lanes	two way, one lane (no linemarking), undivided
Road Reservation Width	approximately 16m
Road Pavement Width	approximately 6m
Classification	N/A
Speed Limit	N/A
Bus Route	NO

On-street parking

NO

## 2.5 Planned changes to the surrounding road network

The proposed development is located in an area that is about to undergo a significant transformation in coming years. Transportation networks are going to be extended and enhanced in next 10 years. Below are quotations from some of the current documentation showing the extent of planned network upgrades.

### **Alkimos Eglinton District Structure Plan February 2020**

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#### *“ 7.3 PROPOSED ROAD NETWORK*

*The DSP incorporates a network of proposed primary roads comprising regional and major district distributor roads. The proposed ultimate road network incorporates the transport framework included in the current MRS, with the following features:*

- The Mitchell Freeway will form the eastern boundary of the Alkimos Eglinton DSP. It is a Primary Regional Road*
- (‘ red road’) under the MRS. There will be grade separated crossings to the Mitchell Freeway at Romeo Road, Alkimos Drive and Eglinton Avenue.*
- Marmion Avenue is proposed as a north-south integrator arterial (A). It is designated as an Other Regional Road (‘ blue road’) under the MRS.*
- Romeo Road is proposed as an east-west integrator arterial (A), connecting Marmion Avenue to the Mitchell Freeway, through the Alkimos Town Centre. It is proposed as an Other Regional Road (‘ blue road’) under the MRS. Romeo Road has been realigned in the DSP compared to the MRS. This allows for the road to better*
- service the Alkimos Secondary Centre and the Alkimos Coastal Village by providing more direct access to and from the Mitchell Freeway and Marmion Avenue. The realignment of the road reserve will be part of a future MRS Amendment.*
- The Alkimos EW Coastal Village Connector is proposed as an integrator arterial (B), connecting the Alkimos Coastal Village to the Alkimos Town Centre. It is planned to connect with Marmion Avenue at the same location as Romeo Road, providing a continuous link between the coast and the Mitchell Freeway.*
- Alkimos Drive is proposed as an east west integrator arterial (A) for the section east of Marmion Avenue. It will connect Marmion Avenue to the Mitchell Freeway. This section of Alkimos Drive is proposed as an Other Regional Road under the MRS. West of Marmion Avenue, Alkimos Drive is proposed as an integrator arterial (B).*
- Eglinton Avenue is proposed as an east west integrator arterial (A). It will connect Marmion Avenue to the Mitchell Freeway. This section of Eglinton Avenue is proposed as an Other Regional Road under the MRS. West of Marmion Avenue, Eglinton Avenue is proposed as an integrator arterial (B).*
- Neighbourhood connectors throughout Alkimos Eglinton will form the local road linkages to the district roads.*
- Wherever practical a coastal road, is to be provided to clearly delineate the boundary between the foreshore and the land to be developed for urban purposes. This road is not intended to be a major thoroughfare (indeed it is to be a lower order road) although it must provide full public recreational access to the coast and assist in the provision of coastal parking facilities*

*Marmion Avenue, Eglinton Avenue, Romeo Road and parts of Alkimos Drive (district distributor roads) will ultimately all be four lane divided roads with reserve widths varying from 36 to 53 m. The design will be based on an ultimate operating speed of 60-70 kph, with the lower speeds applying through the Secondary and District Centres.*

*The district roads will have operating speeds of 50-60 kph and reserve widths of 20 to 30 m. Carriageway configurations vary from two lane boulevards to single, two-way carriageways to accommodate traffic volumes of between 2,000-15,000 vehicles per day.*

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#### *“ 7.5 PUBLIC TRANSPORT*

*The proposed ultimate public transport network will include three components:*



## Transport Impact Statement

KC01384.000 Lot 2035 Cushing Road, Alkimos

- *The northern suburbs railway line for line-haul movements to district and regional destinations. Within Alkimos*

*Eglinton it is planned to have 2 rail stations: Alkimos Town Centre and Eglinton District centre. The two stations will provide a high quality service.*

*The Alkimos Eglinton second tier public transport system which will link the main demand centres within the area and also act as a collector service to the railway stations. The indicative alignment and stopping pattern of the CAT service (Figure 13) provides a high quality public transport service.*

- *Conventional Transperth bus services would provide a public transport service to areas outside of the catchment of the CAT.*

*Figures 14, 15 and 16 shows the walkable catchments for each public transport services proposed. The large majority of the project area is within 800 m of a rail station, CAT stop or bus route.*

*At the DSP level, the route alignments are indicative and subject to refinement as detailed planning progresses for each of the development stages.*

*The DSP includes an alignment for the extension of the Northern Suburbs Railway through the area. The horizontal railway alignment adopted in the DSP includes provision for the tracks, a principal shared path, access road, earthworks and retaining walls, generally within a 35 metre wide reserve. The alignment has been designed for train speeds up to 140 kph.”*

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### “ 7.5.1 RAILWAY ALIGNMENT

*The GHD definition work identified the provision of three rail stations within the DSP: Alkimos Town Centre, Eglinton District Centre and a Park and Ride Station at Alkimos Drive. Through the design process for the Alkimos City Centre Activity Centre Structure Plan (ASP) and the LandCorp landholding to the north, known as Central Alkimos, it was advised by the Department of Transport that the Park and Ride Station at Alkimos Drive was no longer required.”*

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## North Alkimos Local Structure Plan No. 73 March 2017

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### “ 6.6 MOVEMENT NETWORK

- *Local bus routes will connect Eglinton Station to Alkimos Station and thus provide good access to district and regional shopping, employment and education. One of the routes has been designated as a ‘ CAT type’ route along which higher density development is seen as most appropriate.*
- *Alkimos North Station – a longer term possible station with significant park n’ ride (in order of 1000 bays). The subject land residents will be able to drive to station for kiss n’ ride and park n’ ride transfer to rail network. The service is highly valuable, and the North Alkimos Station would take park n’ ride pressure off the Alkimos Regional Centre station. The train service provides links to district and regional shopping, employment and education.*
- *Marmion Avenue and Alkimos Drive provide high capacity, high speed vehicle connections to the regional road network (including future Mitchell Freeway) and will serve commuter and commercial vehicle movements generated from the subject land.*
- *Freeway and rail line present opportunities for a principal shared path in north-south direction (as documented in DSP).*
- *Marmion Avenue and Alkimos Drive (east of Marmion Avenue) are access controlled roads and thus the number and location of intersections are strictly regulated (especially signalised or roundabout controlled intersections). No direct property access on these roads and Main Roads have advised that CAP roads are not considered suitable on Marmion Avenue.*
- *Marmion Avenue, Alkimos Drive and the Mitchell Freeway will all have noise mitigation issues/requirements. Marmion Avenue and Alkimos Drive pose severance issues for the communities on either side of these roads.*
- *The rail line poses a physical barrier and grade separated vehicle/pedestrian crossings should be provided at no greater than 800 m spacing but ideally at no greater than 500 m spacing.*
- *The subject land doesn’t have an intersection with signal control on its Marmion Avenue frontage and relies on roads through other properties for access to signalised intersections on Marmion Avenue.*
- *The Freeway is likely to be constructed after the rail line (thus is likely to be at least ten years away). With the service commercial land located to the east side of Alkimos Drive (near the freeway) it will not benefit from Freeway access for some time.”*

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### “ 10.2 THE ROAD HIERARCHY, INTERNAL CROSS SECTIONS AND RESERVATIONS

*Road Hierarchy and Arterial Access Plan:*

- Mitchell Freeway – Primary Distributor
- Alkimos Drive – District Distributor A
- Scotthorn Drive – District Distributor B
- Bainbridge Avenue – Neighbourhood Connector

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“ 10.9 SHARED PATHS

Shared paths are proposed for along all District Distributors and Local Distributors.

The Alkimos Eglinton DSP shows a principal shared path along the Mitchell Freeway and along the rail line. It is also expected that there will be a shared path along the coast. In addition, all District Distributors are expected to have shared paths along both sides through urban areas. Neighbourhood Connectors generally have a shared path on one side and footpath on the other side. Local Access Streets would generally have a footpath on both sides except for those with very low traffic and low pedestrian demand. Those low order streets would have a footpath on one side only.

Road Hierarchy and Arterial Access Plan:

- Mitchell Freeway – Principal Shared Path
- Alkimos Drive – Shared Path and Paved Shoulder/Cycle Lane
- Scotthorn Drive – Shared Path and Paved Shoulder/Cycle Lane
- Bainbridge Avenue – Shared Path

## 2.6 Traffic Volumes

Are traffic volumes available on Main Roads WA website? NO

What are the expected traffic volumes on surrounding roads?

Alkimos-Eglinton District Structure Plan No. 18 – Amendment 2 Appendix 4 Transport Impact Assessment (GTA Traffic Consultants) dated 12/09/18 states the following:

“ A summary of adjacent road categories and forecast volumes on the surrounding road networks as described above and extracted from the adjacent LSP reports noted as follows:

- Mitchell Freeway ( Primary Regional Road)
  - 70,000 vehicles per day north of Alkimos Drive
- Wanneroo Road ( Primary Regional Road)
  - 14,250 vehicles per day north of Alkimos Drive
- Marmion Avenue ( District Distributor A Road)
  - 31,000 vehicles per day north of Alkimos Drive
- Alkimos Drive ( District Distributor A/B road)
  - 32,000 vehicles per day west of Mitchell Freeway
  - 17,500 vehicles per day east of Marmion Avenue
- Eglinton Drive ( District Distributor A/B road)
  - 19,000 vehicles per day west of Mitchell Freeway
  - ( Pipidiny Road) up to 7,000 vehicles per day east of Mitchell Freeway
- Scotthorn Drive ( Neighbourhood Connector Road)
  - 7,650 vehicles per day north of Alkimos Drive”

## 2.7 Vehicular Crash Information and Risk Assessment

Is Crash Data Available on Main Roads WA website? NO

If YES, nominate important survey locations:

Location 1 Cushing Road (Barney Road to Magellan Road)

Period of crash data collection 01/01/2016 - 31/12/2020

Comment No crashes were reported at the above location in the 5-year period.

## 2.8 Vehicular Parking

Local Government

City of Wanneroo

Local Government Document Utilised

Local Planning Policy 2.3: Child Care Centres

Description of Parking Requirements in accordance with Scheme:

*1 bay per staff member + 9 bays for 47-54 children*

### Calculation of Parking

Land Use	Requirements	Yield	Total Parking
Childcare Centre	1 per staff member; 9 for 47-54 children	8 staff members; 51 children	17
<b>Total Car Parking Requirement</b>			<b>17</b>
<b>Total Volume of Parking Provided by Proponent</b>			<b>14</b>

### Justification

The plans for the proposed development show a total of 14 parking bays.

City of Wanneroo stipulates a requirement of 17 parking bays, thereby leading to a nominal shortfall of 3 parking bays. However, given the nature of the proposed land use and site context, the following points inform KCTT's opinion that the proposed parking can meet the development requirements:

- There are 4 on-street bays fronting the proposed development to the south on Bainbridge Avenue.
- Additional on-street parking (≈100bays) is available within a 400m radius on Bainbridge Avenue, Coram Street, Decatur Street, Barney Road, Magellan Road.
- The capacity of the childcare centre is 51 children. It is highly unlikely that the childcare centre would operate at the maximum capacity at all times.
- The proposed development will provide 8 bicycle parking bays.
- According to RTA NSW Guide to Traffic Generating Developments, the average dwell time for vehicles during drop off is 6.8 minutes
- For further justification, KCTT has assumed a more conservative 10 minutes of dwell time and that all 51 children are in attendance, driven to the childcare and there are no siblings. Based on the above, 1 parking bay could accommodate 6 vehicles in an hour and 12 vehicles in the 2-hour period for Childcare centres. Therefore, 5 drop-off parking bays would be sufficient for catering all parents' parking requirements in a 2-hour peak.
- With the above in mind, 6 on-site drop-off bays will be more than sufficient for all parents' parking requirements (assuming that 8 bays are allocated to staff members as shown on layout plans).
- It is expected that some staff members could possibly cycle/walk or get dropped off to work, therefore not requiring a parking bay for the duration of their shift. Not all staff members will work at one time.
- Parents who live in the vicinity of the proposed development could drop-off their children on-foot or park near the Northshore Christian Grammar School if they have older children who attend it.

KCTT believes that the childcare centre's pick up / drop off function can be effectively catered for on premises and available on-street parking; therefore, it is highly unlikely that this shortfall would have any negative impact.

**Have Vehicle Swept Paths been checked for Parking?** YES

*If YES, provide description of performance:*

The navigability of the crossover and parking area has been checked with a B99 Passenger Vehicle 5.2m. The parking area appears to be fully navigable. Refer to Appendix 3 for swept paths.

## 2.9 Compliance with AS2890.1:2004 and AS2890.6

Number of Parking Bays on-site	14
Are Austroads documents referenced?	YES
If <u>YES</u> , Nominate:	<ul style="list-style-type: none"> <li>Australian/New Zealand Standard, Parking facilities, Part 1: Off-street car parking - Originated as AS 2890.1—1986.</li> <li>Australian/New Zealand Standard, Parking facilities, Part 6: Off-street parking for people with disabilities - Originated as AS2890.6</li> </ul>
Proposed development User Class	User Class 1A (Residential, domestic and employee parking) User Class 4

AS2890.1:2004 Off-street car parking						
AS2890.6 Off-street parking for people with disabilities						
Parking Bay Type	Parking Bay Length		Parking Bay Width		Aisle Width	
	Required	Proposed	Required	Proposed	Required	Proposed
All bays at 90°	5.4m	5.5m	2.4m	2.5m	5.8m	6m
ACROD Parking	5.4m	5.5m	2.4m—ACROD 2.4m—shared space	2.4m—ACROD 2.4m—shared space	5.8m	6m

Reversing bay	Bollard at the ACROD Shared Space to be relocated to the back. This will allow for vehicles to use Shared Space for turning around on site.
Does the parking area meet the requirements set in AS2890.1:2004?	KCTT reviewed the layout for the proposed development and concluded that car parking bays dimensions and aisle width are according to the Australian Standard AS/NZS 2890.1/2004.
Does the parking area meet the requirements set in AS2890.6?	YES

## 2.10 Bicycle Parking

Local Government	City of Wanneroo
Reference Document Utilised	District Planning Scheme No. 2
Description of Parking Requirements in accordance with Scheme:	

*“ Council may require the provision of bicycle parking and end of trip facilities such as showers, change rooms and lockers in commercial developments and other employment centres in accordance with Austroads’ Guide to Engineering Practice Part 14: Bicycles.”*

Austroads’ Guide to Engineering Practice Part 14: Bicycles has been replaced by Guide to Traffic Management Part 11: Parking, therefore KCTT have referenced the latter document:

*“ Child day care centre: Bicycles (long-stay) -1 space”*

### Justification

The plans for the proposed development show 4 two-sided bicycle racks - a total of 8 bicycle parking spaces for promotion of alternative means of transport.

## 2.11 ACROD Parking

Class of Building Class 9b  
 Does this building class require specific provision of ACROD Parking? YES  
 Reference Document Utilised Building Code of Australia

**Description of Parking Requirements:**

Class 9b — (b) Other assembly building — (i) up to 1000 carparking spaces; - 1 space for every 50 carparking spaces or part thereof

**Parking Requirement in accordance with regulatory documents**

Land Use	Requirements	Yield	Total Parking
Childcare	<i>1 space for every 50 carparking spaces or part thereof</i>	14	1
<b>Total Volume of ACROD Parking Required</b>			<b>1</b>
<b>Total Volume of ACROD Parking Provided by Proponent</b>			<b>1</b>

**Justification**

The proposed development meets the requirement for 1 ACROD bay.

## 2.12 Delivery and Service Vehicles

Guideline Document used as reference NSW RTA Guide to Traffic Generating Developments  
 Requirements  
*“ Other uses - 1 space per 2,000m<sup>2</sup>”*

**Parking Requirement in accordance with regulatory documents**

Land Use	Minimum Requirements	Yield	Total Parking
Childcare	<i>1 space per 2,000m<sup>2</sup></i>	<2,000m <sup>2</sup>	1
<b>Total Volume of Service and Delivery Parking Required</b>			<b>1</b>
<b>Total Volume of Service and Delivery Parking Provided by Proponent</b>			<b>N/A</b>

**Justification**

The above requirements are only stated as a guide. KCTT believe that a childcare centre does not require a specific bay, since all deliveries can be conducted outside of peak hours of operation when all drop-off parking bays will be empty. Furthermore, the waste collection can be conducted safely within the road reserve.

## 2.13 Calculation of Development Generated / Attracted Trips

What are the likely hours of operation? Child Care Centre – 06:30-18:30  
 What are the likely peak hours of operation? 07:30 - 08:30 and 16:30 - 17:30  
 Guideline Document Used NSW RTA Guide to Traffic Generating Developments  
*Rates from above document:*

- Child Day Care:**
- AM Peak - 0.8 VPH per child
  - PM Peak - 0.7 VPH per child

It should be noted that these rates are given for a 2-hour peak period. For the purposes of this report, KCTT assumes that the two-hour traffic volume will be attracted to the development in a one-hour period which will represent the peak for the subject site.

Given that the WAPC Transport Assessment Guidelines and NSW RTA Guide to Traffic Generating Developments do not offer daily vehicular trip generation rate for the proposed land use KCTT have assumed the following to apply:

**Childcare centre**

Vehicular daily trips can be assumed to be 4 VPD per child and 2 VPD per employee. Based on the received information, the childcare centre is expected to operate with a 94% utilisation rate of the licenced capacity over the year due to a number of days that children attend (this ranges from 2 to 5 days a week) and seasonal adjustments (end of year and when people return to work from maternity leave). Therefore, the expected average daily operative maximum of this childcare facility can be estimated as 43 children. Market information indicates that between 10-20% of parents tend to have more than one child at a childcare centre, so those families only account for one vehicular trip. A further percentage of parents will have older siblings attending one of the nearby schools. However, in the calculations below, a conservative approach has been applied showing the theoretical maximum number of children, under assumption that all children are driven to school and there are no siblings in the centre.

Land Use Type	Rate above	Yield	Daily Traffic Generation	Peak Hour Traffic Generation	
				AM	PM
Proposed Childcare Centre	<i>Daily - 4 VPD per child and 2 VPD per staff member</i>	51 children; 8 staff members	220	41	36
Existing Childcare Centre	<i>AM Peak - 0.8 VPH per child PM Peak - 0.7 VPH per child</i>	70 children; 13 staff members	306	56	49
<b>Total:</b>			<b>526</b>	<b>97</b>	<b>85</b>

What is the total impact of the new proposed development?

The proposed development will generate an additional 220 vehicular trips per day; 41 vehicular trips per hour in the AM peak hour and 36 vehicular trips per hour in the PM peak hour.

Given there will be two childcare centres sharing one crossover, the above table shows the total traffic generated to the surrounding network via this crossover.

## 2.14 Traffic Flow Distribution

How many routes are available for access / egress to the site? Two routes  
 Additional traffic: 220 VPD / 41 AM VPH / 36 PM VPH  
 Total: 526 VPD / 97 AM VPH / 85 VPH

### Route 1

Provide details for Route No 1 To/from Cushing Road via Barney Road and Bainbridge Avenue to the west

Percentage of Vehicular Movements via Route No 1 80% - 176 VPD / 33 AM VPH / 29 PM VPH - proposed childcare

[229 VPD / 45 AM VPH / 39 VPH] - existing childcare

### Route 2

Provide details for Route No 2 To/from Cushing Road via Magellan Road and Bainbridge Avenue to the west

Percentage of Vehicular Movements via Route No 2 20% - 44 VPD / 8 AM VPH / 7 PM VPH - proposed childcare

[61 VPD / 11 AM VPH / 10 VPH] - existing childcare

Note - Following completion of construction of the structure plan area traffic flow may be redistributed to the east via Scotthorn Drive and Future Alkimos Drive.

## 2.15 Vehicle Crossover Requirements

Are vehicle crossovers required onto existing road networks? YES

How many existing crossovers? One

How many proposed crossovers? No new crossovers proposed

*If there are greater numbers of new crossovers, than existing, provide justification:*

An access to the road network via crossover must be provided for each development.

How close are proposed crossovers to existing intersections? The existing crossover is located at the intersection of Cushing Road and Mulzac Lane. In addition to the two childcare centres at the subject site, this intersection will serve 12 residential units at most. Therefore, the traffic will be low at this intersection.

Furthermore, this is an already approved crossover, and it will be beneficial for the two childcare centres to use one crossover rather than creating another conflict point in this area.

KCTT believe that the crossover position and geometry will not have a negative impact on the traffic flow conditions and safety on the surrounding road network.

## 2.16 Public Transport Accessibility

How many bus routes are within 400 metres of the subject site? None - 2 bus routes within 1km\*

How many rail routes are within 800 metres of the subject site? None

Bus / Rail Route	Description	Peak Frequency	Off-Peak Frequency
490	Butler Station - Two Rocks via Marmion Avenue	5 minutes	1 hour
491	Butler Station – Yanchep via Marmion Avenue	6 minutes	2 hours

\* 490 N Operates on school days only and deviates via Northshore Christian Grammar School.

\* 491 D Operates on school days only and departs from Yanchep Beach Rd near St Andrews Dr and deviates via Yanchep Secondary College, Northshore Christian Grammar School and St James' Anglican School.

\* 490 J Operates on school days only and departs from St James Anglican College at 3:15pm and deviates via Northshore Christian Grammar School.

\* 491 S Operates on school days only and deviates via St James' Anglican School, Northshore Christian Grammar and Yanchep Secondary College.

Is the development in a Greenfields area? YES

Refer to section 2.5 for details on future improvements.

## 2.17 Pedestrian Infrastructure

Describe existing local pedestrian infrastructure within a 400m radius of the site:

Classification	Road Name
Unclassified path	Bainbridge Avenue, Magellan Road, McGiffen Avenue, Buchanan Avenue, Coram Street, Decatur Street, Barney Road

Does the site have existing pedestrian facilities? YES – pedestrian path along Magellan Road and Bainbridge Avenue

Does the site propose to improve pedestrian facilities? YES – internal pedestrian paths

What is the Walk Score Rating?

0 | Car-Dependent. Almost all errands require a car.

Refer to section 2.5 for details on future improvements.

## 2.18 Cyclist Infrastructure

Are there any PBN Routes within an 800m radius of the subject site? NO

Are there any PBN Routes within a 400m radius of the subject site? NO

Does the site have existing cyclist facilities? NO

Does the site propose to improve cyclist facilities? NO

Refer to section 2.5 for details on future improvements.



## 2.19 Site-Specific Issues and Proposed Remedial Measures

How many site-specific issues need to be discussed? One (1)

### Site-Specific Issue No 1

Remedial Measure / Response

#### Parking Shortfall

The plans for the proposed development show a total 14 parking bays.

City of Wanneroo stipulates a requirement of 17 parking bays, thereby leading to a nominal shortfall of 3 parking bays. However, given the nature of the proposed land use and site context, the following points inform KCTT's opinion that the proposed parking can meet the development requirements:

- There are 4 on street bays fronting the proposed development to the south on Bainbridge Avenue.
- Additional on street parking ( $\approx 100$  bays) is available within a 400m radius on Bainbridge Avenue, Coram Street, Decatur Street, Barney Road, Magellan Road.
- The capacity of the childcare centre is 51 children. It is highly unlikely that the childcare centre would operate at the maximum capacity at all times.
- The proposed development will provide 8 bicycle parking bays.
- According to RTA NSW Guide to Traffic Generating Developments, the average dwell time for vehicles during drop off is 6.8 minutes
- For further justification, KCTT has assumed a more conservative 10 minutes of dwell time and that all 51 children are in attendance, driven to the childcare and there are no siblings. Based on the above, 1 parking bay could accommodate 6 vehicles in an hour and 12 vehicles in the 2-hour period for Childcare centres. Therefore, 5 drop-off parking bays would be sufficient for catering all parents' parking requirements in a 2-hour peak.
- With the above in mind, 6 on-site drop-off bays will be more than sufficient for all parents' parking requirements (assuming that 8 bays are allocated to staff members as shown on layout plans).
- It is expected that some staff members could possibly cycle/walk or get dropped off to work, therefore not requiring a parking bay for the duration of their shift. Not all staff members will work at one time.
- Parents who live in the vicinity of the proposed development could drop-off their children on-foot or park near the Northshore Christian Grammar School if they have older children who attend it.

KCTT believes that the childcare centre's pick up / drop off function can be effectively catered for on-premises and available on-street parking; therefore, it is highly unlikely that this shortfall would have any negative impact.

# **Appendix 1**

## **The Layout of the Proposed Development**

# Panda ELC

Address: Lot 2035 (#7) Cushing Road, Alkimos

Childcare Centre

Job Number: 21087

Drawing No	Description
PD01	Cover Sheet
PD02	Existing Site Survey & Site Plan
PD03	Floor Plan
PD04	Elevations



**GERMANO**  
DESIGNS

Unit: 3/1 Mulgool Road, Malaga W.A 6090

(08) 9248 8392 [www.germanodesigns.com.au](http://www.germanodesigns.com.au)

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LEGEND

- Gas Main
- Water Main
- Sewer Main
- Gully
- Stop Valve
- Sewer Manhole
- Light Pole
- Power Dome
- Telstra/NBN Pit
- Peg/Boundary Mark

Survey Date: 16 September 2021 Scale 1:200@A3

Client: Rajai Wahhab

Rev	Date	Description	Surv	Drawn
0	17/09/2021	Feature Survey Drafted	TF	TF

FEATURE AND CONTOUR SURVEY OF  
**LOT 2035 ON DEPOSITED PLAN 417006**  
 7 Cushing Road, Alkimos  
 C/T Vol: 2973 Fol: 126  
 our ref. 21-9442

Feature Survey by  
**THE LAND DIVISION**  
 PO Box 2444,  
 Malaga, WA 6090  
 phone: 08 9209 3232  
 www.landdivision.com.au

NOTES: 1) CONSULT LEGAL ADVICE ON EASEMENTS, ENCUMBRANCES AND CAVEATS THAT MAY APPEAR ON THE CERTIFICATE OF TITLE. 2) LEVELS ON ADJOINING PROPERTIES ARE APPROXIMATE DUE TO ACCESS RESTRICTIONS. 3) SERVICES PLOTTED AS VISUALLY SEEN ON SITE AND ARE APPROXIMATE. 4) SEWER POSITION AND LEVELS FROM WATER CORPORATION PLANS. 5) CONSULT DIA. BEFORE YOU DIG TO CHECK LOCATION OF UNDERGROUND SERVICES. 6) BEWARE OF OVERHEAD POWER LINE HAZARDS. 7) CONSULT TLD ON ANY ANOMALY BEFORE DESIGN AND CONSTRUCTION. 8) POSITION AND DEPTH OF SERVICES TO BE CONFIRMED ON SITE BY CONTRACTOR. 9) FEATURES ARE RELATED TO FENCE-LINES ONLY. NO CONNECTION MADE TO BOUNDARIES. REPEG RECOMMENDED.

0 5 10

LEGEND

- Gas Main
- Water Main
- Sewer Main
- Gully
- Stop Valve
- Sewer Manhole
- Light Pole
- Power Dome
- Telstra/NBN Pit
- Peg/Boundary Mark

Survey Date: 16 September 2021 Scale 1:200@A3

Client: Rajai Wahhab

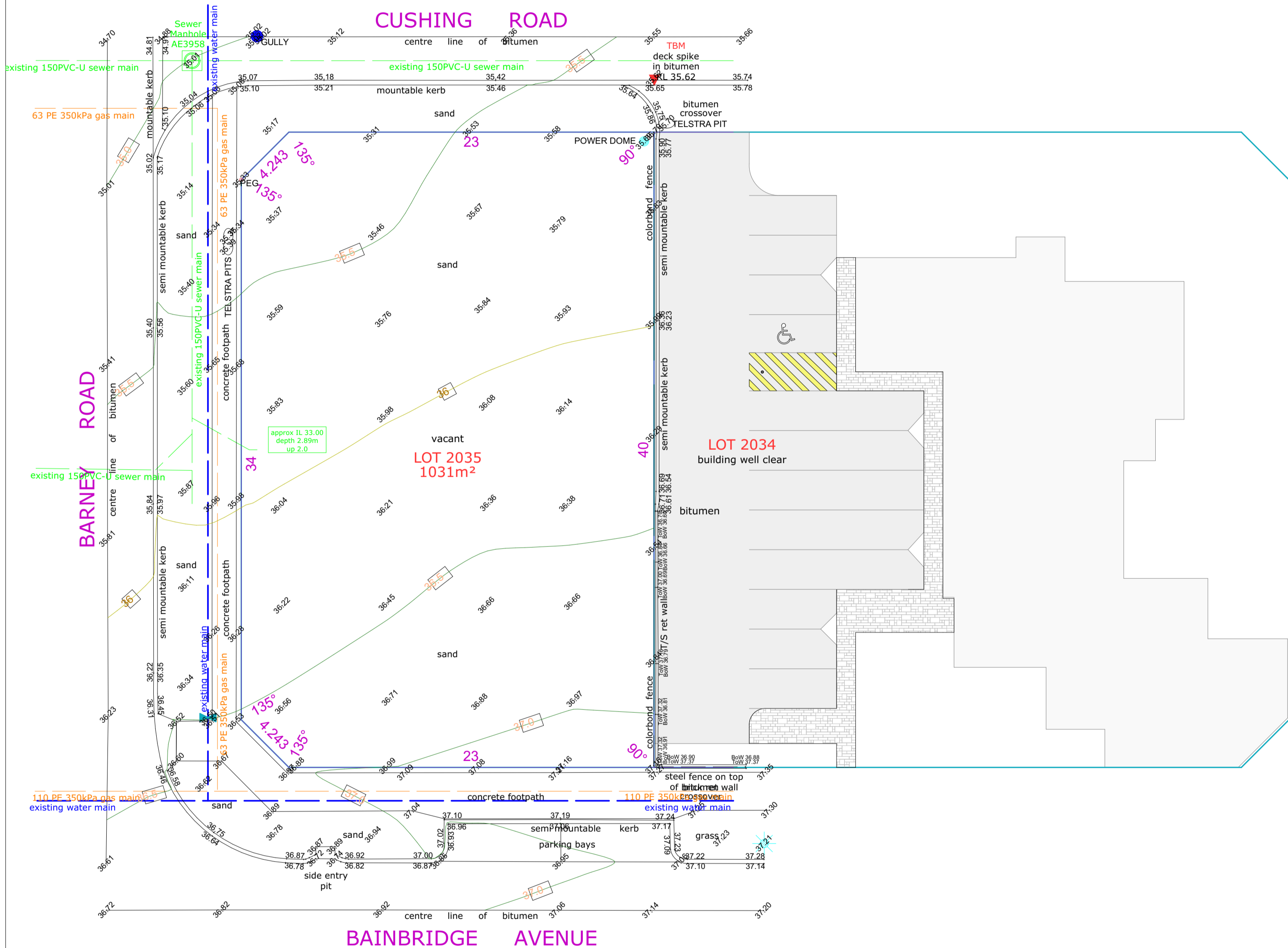
Rev	Date	Description	Surv	Drawn
0	17/09/2021	Feature Survey Drafted	TF	TF

FEATURE AND CONTOUR SURVEY OF  
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 7 Cushing Road, Alkimos  
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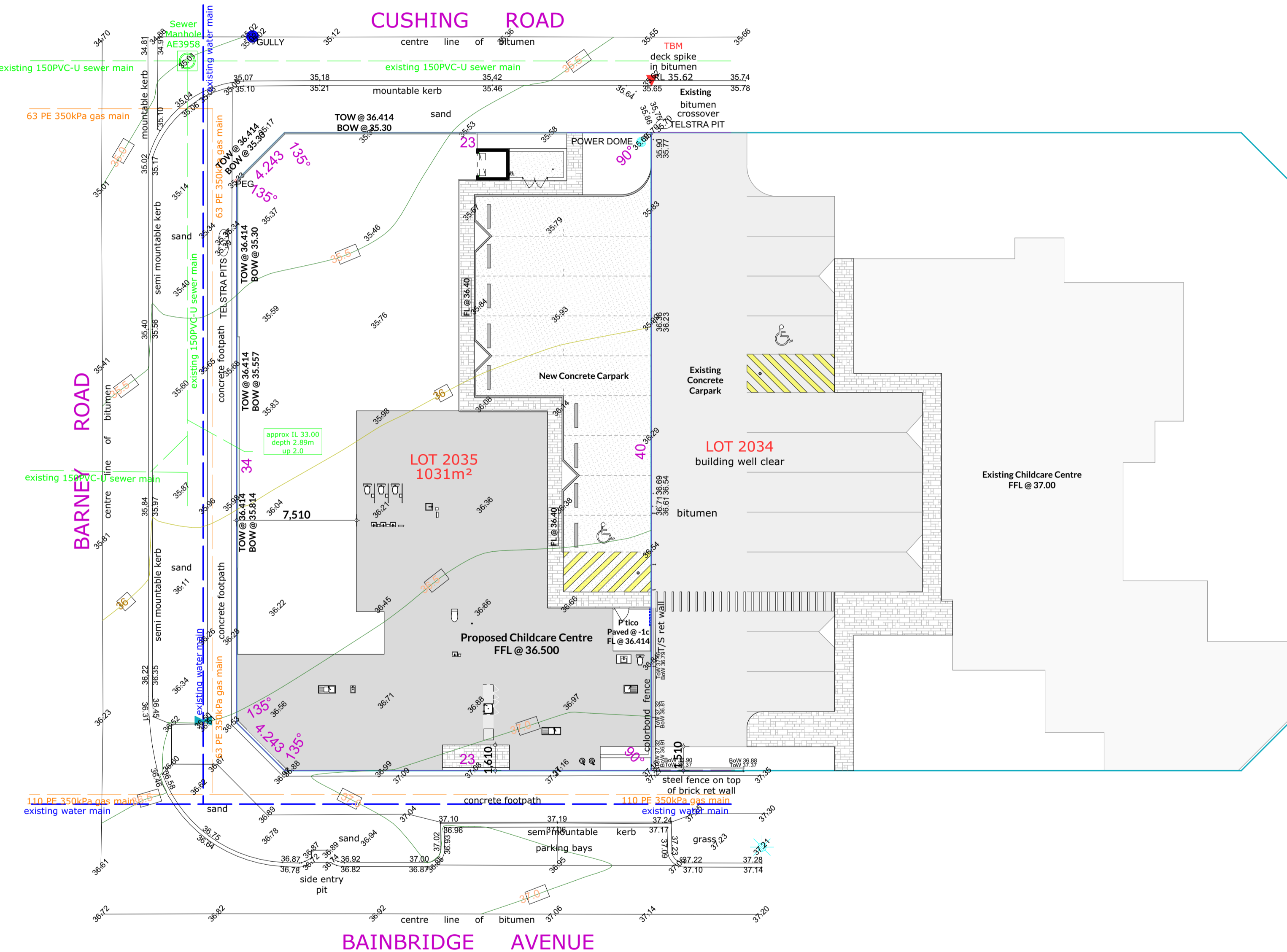
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0 5 10



Existing Site Survey  
1:200



Site Plan  
1:200

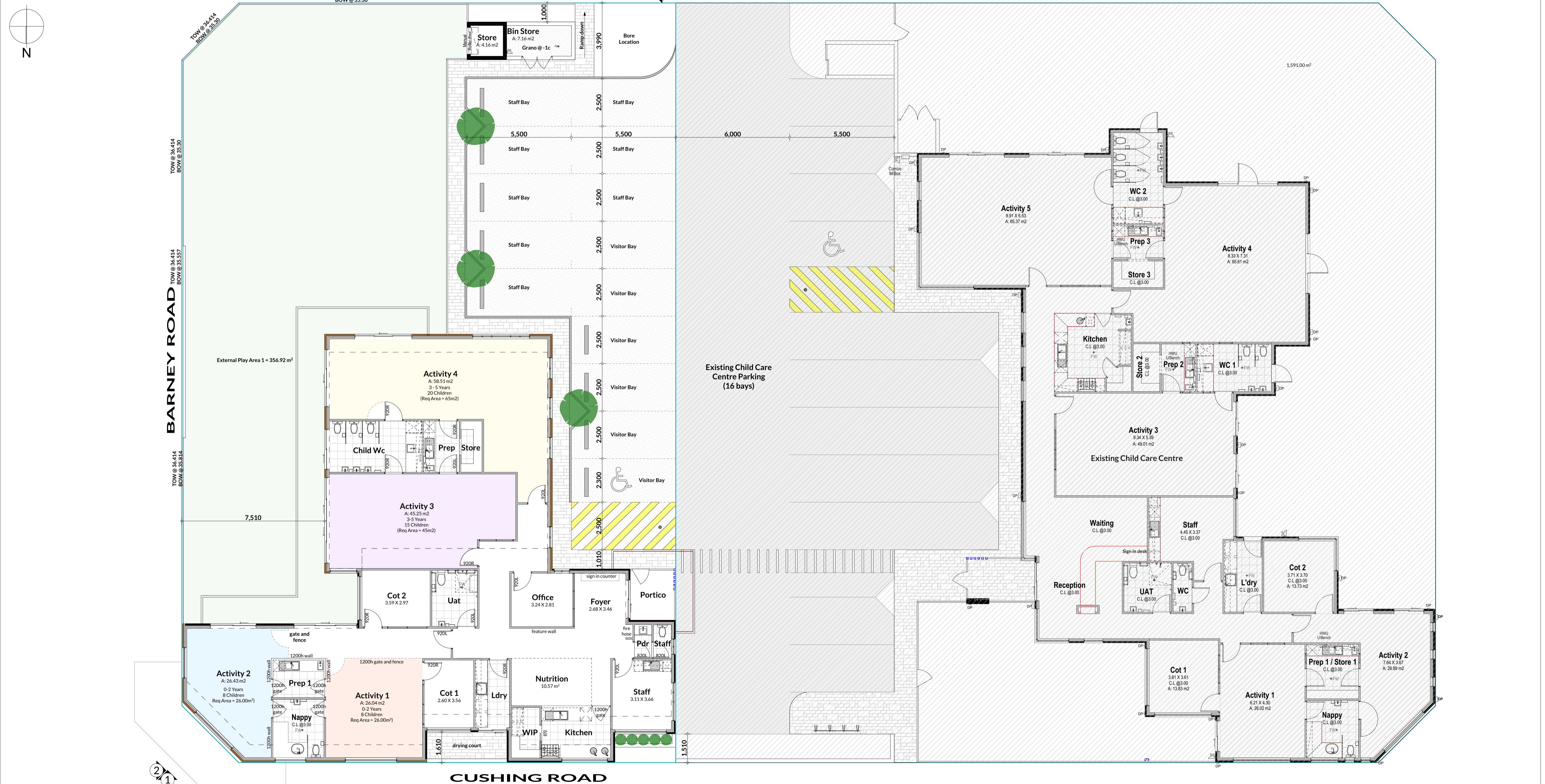
Client Panda ELC	Drawing Title: Existing Site Survey & Site Plan	Issue: Development Approval	
Project Name Childcare Centre	Scale: as noted Sheet Size: A1	Rev: Description: 007 Planning Drawings CD	
Project Address Lot 2035 (#7) Cushing Road, Alkimos	Project No: 21087 Drawing No: PD02 of 04	Revision Number: 007 Date: 17/11/2021	
		Unit: 3/1 Mulgill Road, Malaga WA 6090 (08) 9248 8392 www.germanodesigns.com.au	

Child / Room Calculations				
Room	Age (Yrs)	Quant.	Size	Staff Req
Activity 1	0-2	8	26.04m <sup>2</sup>	2
Activity 2	0-2	8	26.43m <sup>2</sup>	2
Activity 3	3-5	15	45.25m <sup>2</sup>	2
Activity 4	3-5	20	58.51m <sup>2</sup>	2
Nutritional			10.57m <sup>2</sup>	
<b>Total Internal =</b> (Min 3.25m <sup>2</sup> per child)		<b>51</b>	<b>166.80m<sup>2</sup></b> (Min 165.75m <sup>2</sup> req)	<b>8</b>
<b>Total External Play Area =</b> (Min 7m <sup>2</sup> per child)		<b>51</b>	<b>357.11m<sup>2</sup></b> (Min 357.00m <sup>2</sup> req)	

**Parking Calculations**  
as per Wanneroo Local Planning Policy 2.3: Child Care Centres

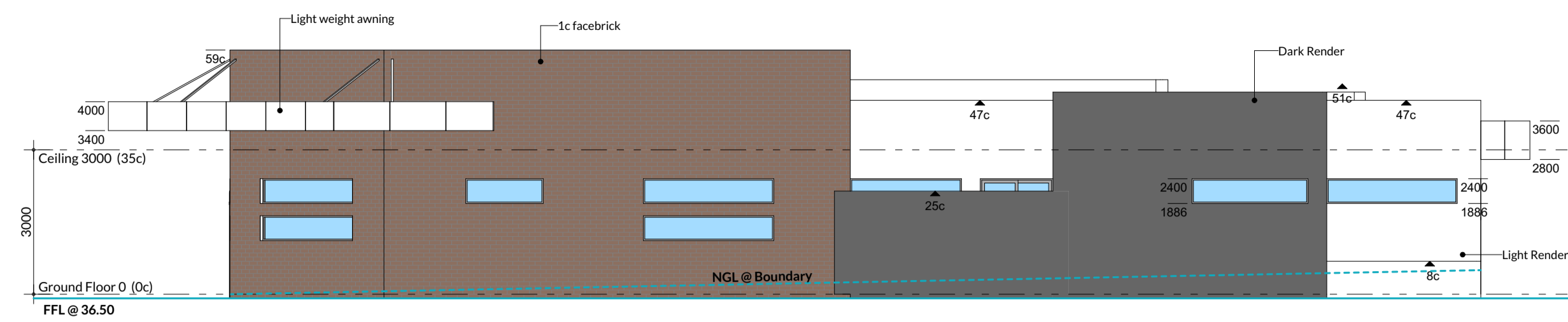
Requirement	Quant	Bays Req'd	Bays Provided
1 space per staff	8	8	8
Type 2 parking	7	7	6

Zone	Area	Perim
Bin Store	7.16	11.18
Child Care Centre	363.50	101.89
Portico	6.75	10.50
Store	4.16	8.16
<b>Total</b>	<b>381.57 m<sup>2</sup></b>	<b>131.73 m</b>

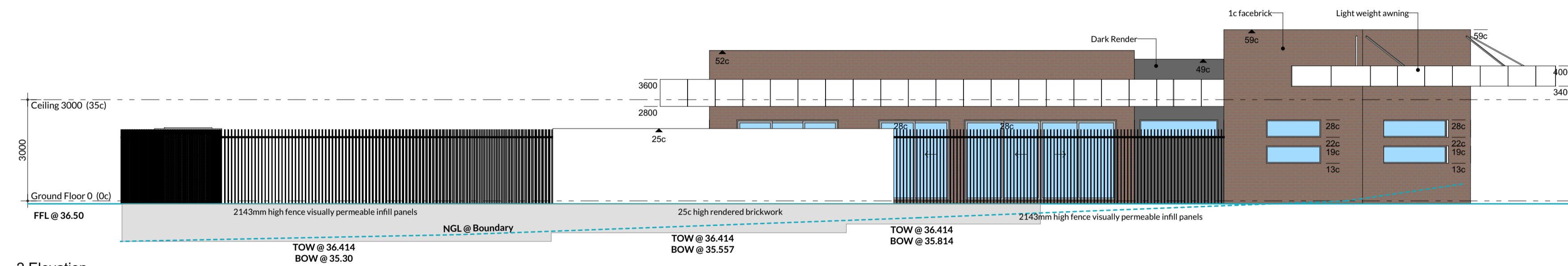


Child Care Centre  
1:100

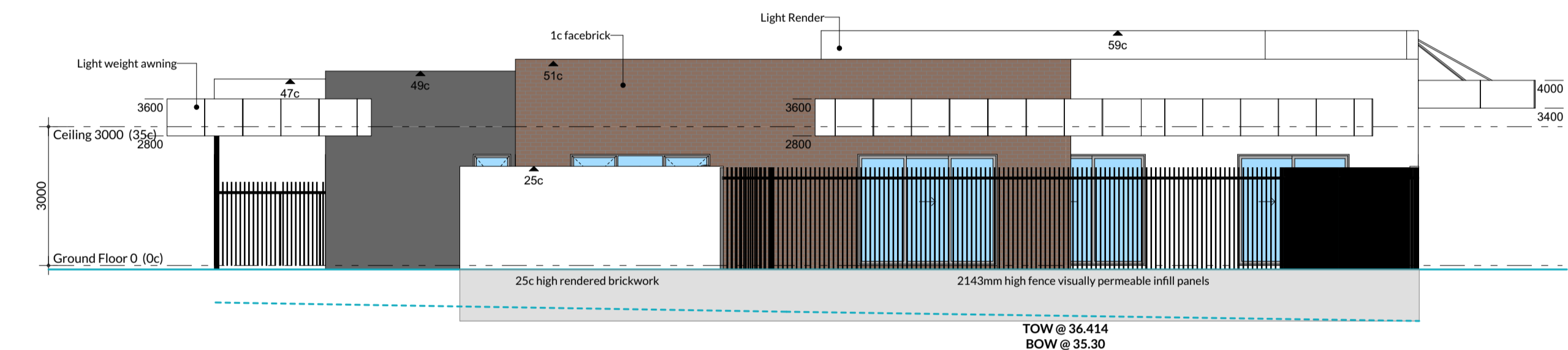
Client Panda ELC	Drawing Title Floor Plan	Issue Development Approval	
Project Name Childcare Centre	Scale: as noted Sheet Size: A1	Rev: Description: Drawn:	
Project Address Lot 2035 (#7) Cushing Road, Alkimos	Project No: 21087 Drawing No: PD03 of 04	Revision Number: 007 Date: 17/11/2021	
Unit: 3/1 Mulgill Road, Malaga WA 6090 (08) 9248 8392 www.germanodesigns.com.au		©COPYRIGHT GERMANO DESIGNS and its staff are not to be held responsible for any errors or omissions in any drawings or specifications prepared by them or any third party.	



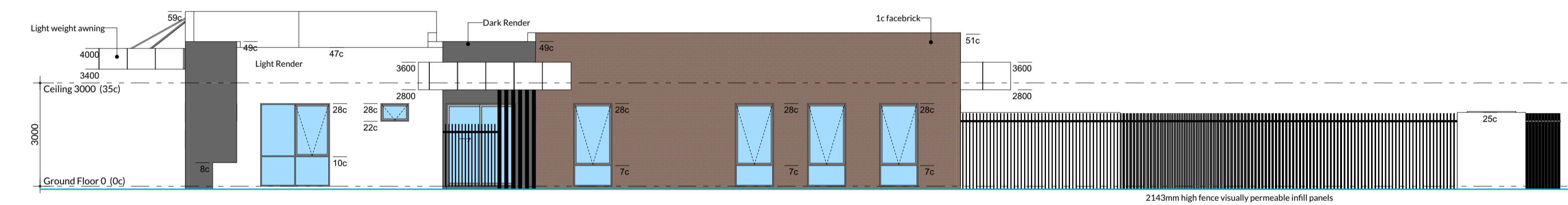
1 Elevation  
1:100



2 Elevation  
1:100



3 Elevation  
1:100



4 Elevation  
1:100

Client Panda ELC Project Name Childcare Centre Project Address Lot 2035 (#7) Cushing Road, Alkimos	Drawing Title: Elevations		Issue: Development Approval		
	Scale: as noted	Sheet Size: A1	Rev:	Description:	
	Project No: 21087	Drawing No.: PD04 of 04	007	Planning Drawings	
	Revision Number: 007	Date: 17/11/2021	CD		
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# **Appendix 2**

## **Transport Planning and Traffic Plans**



**CITY OF WANNEROO**

	PARKS AND RECREATION		LOCATION BOUNDARY
	PUBLIC PURPOSE		DISTANCE FROM LOCATION
	ROAD		LOCAL GOVERNMENT NAME
	STREET NAME		SUBURB

*Note - Significant changes in the area planned as part of the Alkimos Eglinton District Structure Plan. Refer to TIS report for more details.*



**LEGEND**

No	DATE	AMENDMENT
A	26-11-2021	ISSUED FOR REVIEW

PROJECT: <b>LOT 2035 CUSHING ROAD, ALKIMOS</b>	DRAWN BY:  N.M.
TITLE: <b>LOCALITY PLAN - 800M RADIUS</b>	
DRAWING NUMBER: <b>KC01384.000_ S01</b>	

Civil & Traffic Engineering Consultants  
Suite 7 No 10 Whipple Street Balcatta WA 6021

PH: 08 9441 2700  
WEB: www.kctt.com.au







CITY OF WANNEROO

	PARKS AND RECREATION		LOCATION BOUNDARY		BUS ROUTES	* - For more information regarding the description of bus routes and their indicative peak and off-peak frequencies refer to the tis report	
	PUBLIC PURPOSE		DISTANCE FROM LOCATION		BUS ROUTE NUMBER		
	ROAD		LOCAL GOVERNMENT NAME			Note - Significant changes in the area planned as part of the Alkimos Eglinton District Structure Plan. Refer to TIS report for more details.	
	STREET NAME	ALKIMOS	SUBURB				

**LEGEND**

			PROJECT: LOT 2035 CUSHING ROAD, ALKIMOS	DRAWN BY: Civil & Traffic Engineering Consultants Suite 7 No 10 Whipple Street Balcatta WA 6021
			TITLE: PUBLIC TRANSPORT PLAN - 800M RADIUS	N.M.
A	26-11-2021	ISSUED FOR REVIEW	DRAWING NUMBER: KC01384.000_ S03	
No	DATE	AMENDMENT		

PH: 08 9441 2700  
WEB: www.kctt.com.au





CITY OF WANNEROO

	PARKS AND RECREATION		LOCATION BOUNDARY		PEDESTRIAN PATH
	PUBLIC PURPOSE		DISTANCE FROM LOCATION		
	ROAD	<b>CITY OF WANNEROO</b>	LOCAL GOVERNMENT NAME		
Hay Street	STREET NAME	ALKIMOS	SUBURB		

*Note - Significant changes in the area planned as part of the Alkimos Eglinton District Structure Plan. Refer to TIS report for more details.*

**LEGEND**

No	DATE	AMENDMENT
A	26-11-2021	ISSUED FOR REVIEW

PROJECT:	LOT 2035 CUSHING ROAD, ALKIMOS
TITLE:	PEDESTRIAN PATHS PLAN - 400M RADIUS
DRAWING NUMBER:	KC01384.000_ S04

DRAWN BY:	Civil & Traffic Engineering Consultants Suite 7 No 10 Whipple Street Balcatta WA 6021
N.M.	PH: 08 9441 2700 WEB: www.kctt.com.au





**CITY OF WANNEROO**

<p> LOCATION BOUNDARY</p> <p> ROAD (VARIED WITH ROAD WIDTH)</p> <p><b>Lewis Road</b> ROAD NAME</p>	<p> Additional Traffic Generation from the proposed development - Daily Traffic</p> <p> Additional Traffic Generation from Subject Site on the specific section of road - IN and OUT direction - Daily Traffic</p> <p> Existing Traffic Generation from the proposed development - Daily Traffic</p>	<p> Traffic Flow IN Direction</p> <p> Traffic Flow OUT Direction</p>	<p><i>It should be noted that following completion of construction of the structure plan are traffic flow may be redistributed to the east via Bainbridge Avenue, Scotthorn Drive and Future Alkimos Drive.</i></p> <p><small>NOTE: THE PLAN IS COURTESY OF GERMANO DESIGNS</small></p> <p><b>LEGEND</b></p>	<p></p> <p>Certified System Quality ISO 9001 SAI GLOBAL</p>
--	--	--	--	---

			PROJECT: LOT 2035 CUSHING ROAD, ALKIMOS	DRAWN BY: Civil & Traffic Engineering Consultants Suite 7 No 10 Whipple Street Balcatta WA 6021
			TITLE: TRAFFIC FLOW DIAGRAM - DAILY TRAFFIC	N.M.
			DRAWING NUMBER: KC01384.000_S06	
A	26-11-2021	ISSUED FOR REVIEW		
No	DATE	AMENDMENT		





**CITY OF WANNEROO**

LOCATION BOUNDARY ROAD (VARIED WITH ROAD WIDTH) Lewis Road ROAD NAME	Total Additional Traffic Generation from the proposed development - AM peak Total Additional Traffic Generation from Subject Site on the specific section of road - IN and OUT direction - AM peak Existing Traffic Generation from the proposed development - AM peak	Traffic Flow IN Direction Traffic Flow OUT Direction	<p><i>It should be noted that following completion of construction of the structure plan are traffic flow may be redistributed to the east via Bainbridge Avenue, Scotthorn Drive and Future Alkimos Drive.</i></p> <p>NOTE: THE PLAN IS COURTESY OF GERMANO DESIGNS</p> <p><b>LEGEND</b></p>	<p>Certified System Quality ISO 9001 SAI GLOBAL</p>
--	--	---	---	---

			PROJECT: LOT 2035 CUSHING ROAD, ALKIMOS	DRAWN BY: Civil & Traffic Engineering Consultants Suite 7 No 10 Whipple Street Balcatta WA 6021
			TITLE: TRAFFIC FLOW DIAGRAM - AM PEAK	N.M.
			DRAWING NUMBER: KC01384.000_S07	
A	26-11-2021	ISSUED FOR REVIEW		
No	DATE	AMENDMENT		





CITY OF WANNEROD

<p> LOCATION BOUNDARY</p> <p> ROAD (VARIED WITH ROAD WIDTH)</p> <p><b>Lewis Road</b> ROAD NAME</p>	<p> Total Additional Traffic Generation from the proposed development - PM peak</p> <p> Total Additional Traffic Generation from Subject Site on the specific section of road - IN and OUT direction - PM peak</p> <p> Existing Traffic Generation from the proposed development - PM peak</p>	<p> Traffic Flow IN Direction</p> <p> Traffic Flow OUT Direction</p>	<p><i>It should be noted that following completion of construction of the structure plan are traffic flow may be redistributed to the east via Bainbridge Avenue, Scotthorn Drive and Future Alkimos Drive.</i></p> <p>NOTE: THE PLAN IS COURTESY OF GERMANO DESIGNS</p>	<p></p> <p>Certified System Quality ISO 9001</p>
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**LEGEND**

			PROJECT: LOT 2035 CUSHING ROAD, ALKIMOS	DRAWN BY: Civil & Traffic Engineering Consultants Suite 7 No 10 Whipple Street Balcatta WA 6021
			TITLE: TRAFFIC FLOW DIAGRAM - PM PEAK	N.M.
			DRAWING NUMBER: KC01384.000_S08	
A	26-11-2021	ISSUED FOR REVIEW		
No	DATE	AMENDMENT		

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# **Appendix 3**

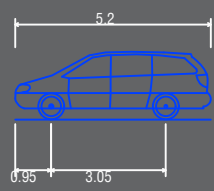
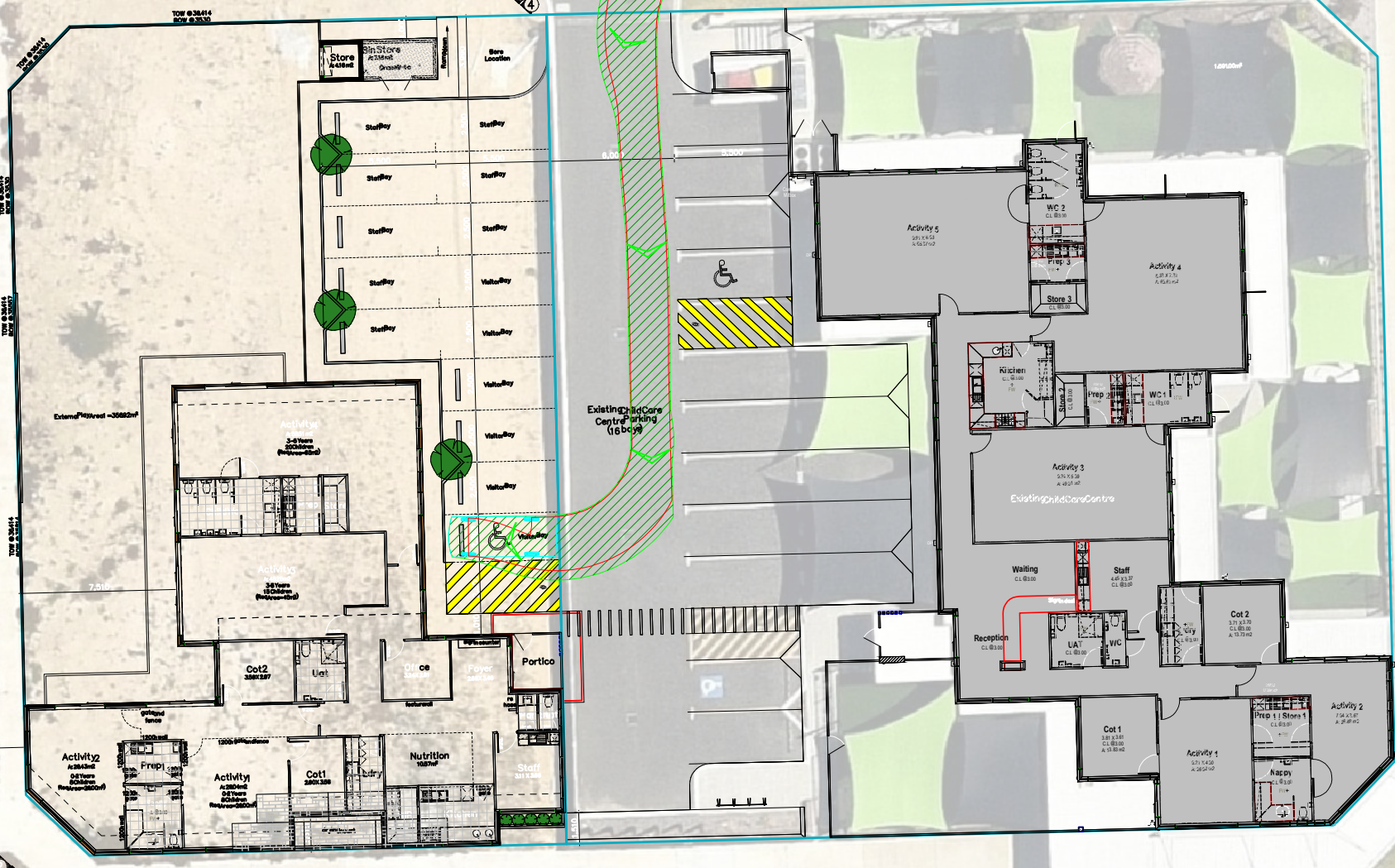
## **Vehicle Turning Circle Plan**



Cushing Road

Barney Road

Bainbridge Avenue



Passenger vehicle (5.2 m)  
 Overall Length 5.200m  
 Overall Width 1.940m  
 Overall Body Height 1.804m  
 Min Body Ground Clearance 0.295m  
 Track Width 1.840m  
 Lock to Lock Time 4.00s  
 Kerb to Kerb Turning Radius 6.300m

- Lot boundary
- Wheel Path (Forward Vehicle Motion)
- Vehicle Chassis Envelope (Forward Vehicle Motion)
- Wheel Path (Reverse Vehicle Motion)
- Vehicle Chassis Envelope (Reverse Vehicle Motion)

MANAGEMENT  
 SYSTEMS  
 REGISTERED  
 TO ISO 9001

**LEGEND**

NO	DATE	AMENDMENT
A	26-11-2021	ISSUED FOR REVIEW

PROJECT:  
 Lot 2035 Cushing Road, Alkimos

TITLE:  
 Vehicle Turning Circle Plan - B99 Passenger Vehicle (5.2m)

DRAWING NUMBER:  
 KC01384.000\_S20

DRAWN BY:  
 Civil & Traffic Engineering Consultants  
 Suite 7 No 10 Whipple Street Balcatta WA 6021

N.M.

PH: 08 9441 2700  
 WEB: www.kctt.com.au

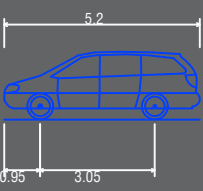
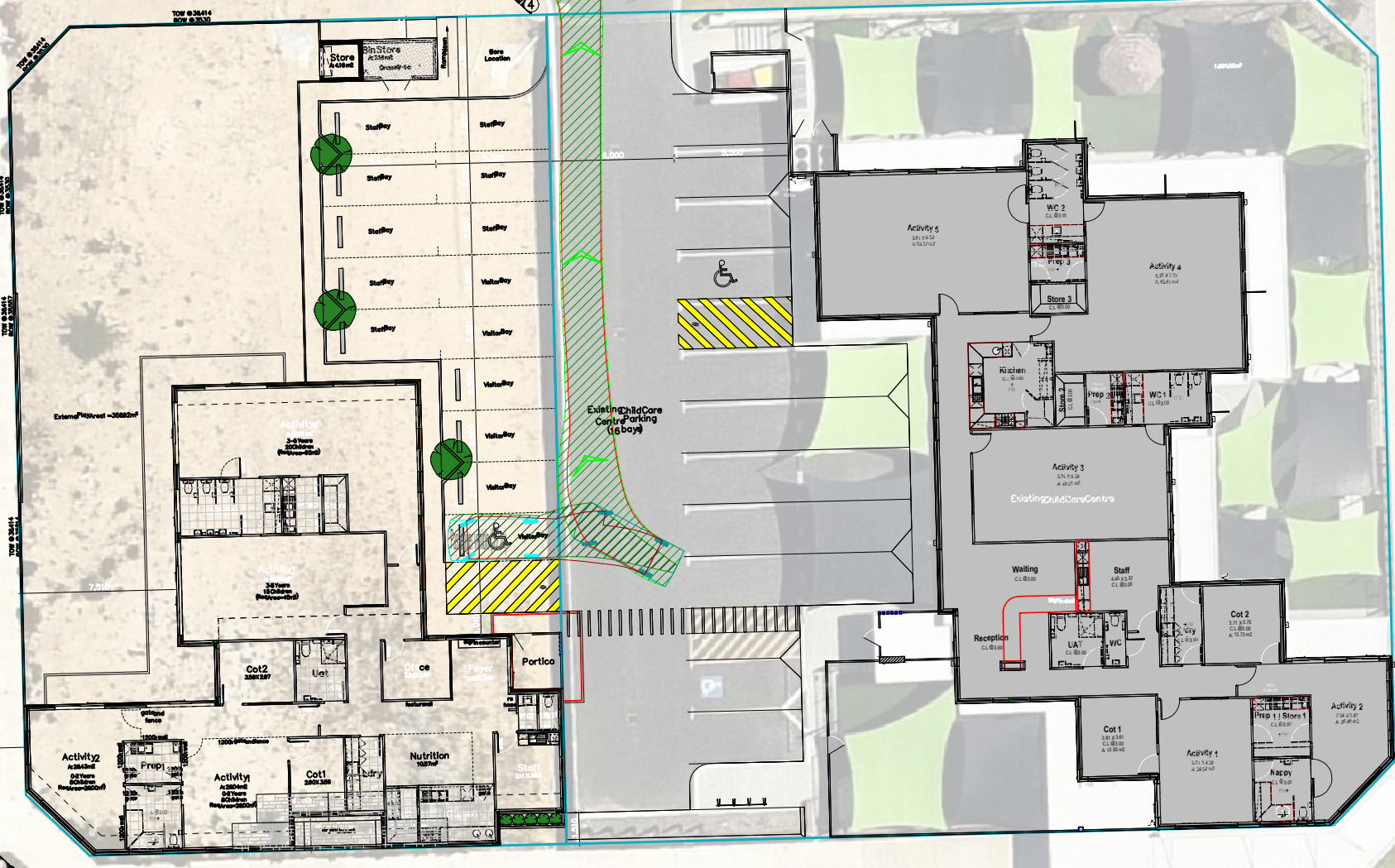




Cushing Road

Barney Road

Bainbridge Avenue



Passenger vehicle (5.2 m)  
 Overall Length 5.200m  
 Overall Width 1.940m  
 Overall Body Height 1.804m  
 Min Body Ground Clearance 0.295m  
 Track Width 1.840m  
 Lock to Lock Time 4.00s  
 Kerb to Kerb Turning Radius 6.300m

- Lot boundary
- Wheel Path (Forward Vehicle Motion)
- Vehicle Chasis Envelope (Forward Vehicle Motion)
- Wheel Path (Reverse Vehicle Motion)
- Vehicle Chasis Envelope (Reverse Vehicle Motion)

MANAGEMENT  
 SYSTEMS  
 REGISTERED  
 TO ISO 9001

**LEGEND**

NO	DATE	AMENDMENT
A	26-11-2021	ISSUED FOR REVIEW

PROJECT: Lot 2035 Cushing Road, Alkimos
TITLE: Vehicle Turning Circle Plan - B99 Passenger Vehicle (5.2m)
DRAWING NUMBER: KC01384.000_S21

DRAWN BY:
N.M.

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 Suite 7 No 10 Whipple Street Balcatta WA 6021  
 PH: 08 9441 2700  
 WEB: www.kctt.com.au



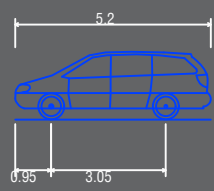




Cushing Road

Barney Road

Bainbridge Avenue



Passenger vehicle (5.2 m)  
 Overall Length 5.200m  
 Overall Width 1.940m  
 Overall Body Height 1.804m  
 Min Body Ground Clearance 0.295m  
 Track Width 1.840m  
 Lock to Lock Time 4.00s  
 Kerb to Kerb Turning Radius 6.300m

- - - - - Lot boundary
- — — — — Wheel Path (Forward Vehicle Motion)
- — — — — Vehicle Chasis Envelope (Forward Vehicle Motion)
- - - - - Wheel Path (Reverse Vehicle Motion)
- — — — — Vehicle Chasis Envelope (Reverse Vehicle Motion)

MANAGEMENT  
 SYSTEMS  
 REGISTERED  
 TO ISO 9001

**LEGEND**

NO	DATE	AMENDMENT
A	26-11-2021	ISSUED FOR REVIEW

PROJECT: Lot 2035 Cushing Road, Alkimos
TITLE: Vehicle Turning Circle Plan - B99 Passenger Vehicle (5.2m)
DRAWING NUMBER: KC01384.000_S22

DRAWN BY:
N.M.

Civil & Traffic Engineering Consultants  
 Suite 7 No 10 Whipple Street Balcatta WA 6021  
 PH: 08 9441 2700  
 WEB: www.kctt.com.au

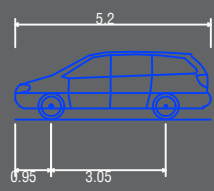




Cushing Road

Barney Road

Bainbridge Avenue



Passenger vehicle (5.2 m)  
 Overall Length 5.200m  
 Overall Width 1.940m  
 Overall Body Height 1.804m  
 Min Body Ground Clearance 0.295m  
 Track Width 1.840m  
 Lock to Lock Time 4.00s  
 Kerb to Kerb Turning Radius 6.300m

- Lot boundary
- Wheel Path (Forward Vehicle Motion)
- Vehicle Chassis Envelope (Forward Vehicle Motion)
- Wheel Path (Reverse Vehicle Motion)
- Vehicle Chassis Envelope (Reverse Vehicle Motion)

MANAGEMENT  
 SYSTEMS  
 REGISTERED  
 TO ISO 9001

**LEGEND**

NO	DATE	AMENDMENT
A	26-11-2021	ISSUED FOR REVIEW

PROJECT: Lot 2035 Cushing Road, Alkimos	DRAWN BY: Civil & Traffic Engineering Consultants Suite 7 No 10 Whipple Street Balcatta WA 6021
TITLE: Vehicle Turning Circle Plan - B99 Passenger Vehicle (5.2m)	
DRAWING NUMBER: KC01384.000_S23	

N.M.

PH: 08 9441 2700  
 WEB: www.kctt.com.au

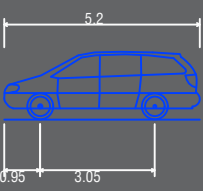


Cushing Road

Barney Road

Bainbridge Avenue

Bollard to be moved further back in the ACROD shared space. This will allow for vehicles to turn around within the site if no parking spaces are available, as stipulated in the AS2890.1:2004 standard.



Passenger vehicle (5.2 m)  
Overall Length 5.200m  
Overall Width 1.940m  
Overall Body Height 1.804m  
Min Body Ground Clearance 0.295m  
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- Lot boundary
- Wheel Path (Forward Vehicle Motion)
- Vehicle Chassis Envelope (Forward Vehicle Motion)
- Wheel Path (Reverse Vehicle Motion)
- Vehicle Chassis Envelope (Reverse Vehicle Motion)

MANAGEMENT  
SYSTEMS  
REGISTERED  
TO ISO 9001

**LEGEND**

A	26-11-2021	ISSUED FOR REVIEW
NO	DATE	AMENDMENT

PROJECT:  
Lot 2035 Cushing Road, Alkimos

TITLE:  
Vehicle Turning Circle Plan - B99 Passenger Vehicle (5.2m)

DRAWING NUMBER:  
KC01384.000\_S24

DRAWN BY:  
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