Lots 143 and 144 (Numbers 34 and 36) St Michael Terrace, Mount Pleasant

Proposed Child Care Premises

June 2025 | 23-385

element. | PART OF SLR

Acknowledgment of Country

We acknowledge the Whadjuk people of the Noongar nation as Traditional Custodians of the land on which we live and work.

We acknowledge and respect their enduring culture, their contribution to the life of this city, and Elders, past and present.

Document ID: '/Volumes/Graphics/2023/23-385 - Mount Pleasant, St Michaels Terrace /00 Report/00 InDesign/23-385 St Michael Tce 250611 Folder/23-385 St Michael Tce F 250612.indd'

Issue	Date	Status	Prepared by	Approved by	Graphics	File
1	12.06.25	Final	Emily Greenwood	Mark Scarfone	MS	F

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Contents

1. Introduction

This application seeks approval to construct a 'Child Care Premises' at Lots 144 and 143 (Numbers 34 and 36) St Michael Terrace, Mount Pleasant (the subject site). The site comprises two lots totalling 2,100m2 and is currently vacant.

The Child Care Premises is proposed to accommodate 113 children from 0 years to 3+ years old. The facility will offer families a high-quality built environment and high standards of early childhood education delivered by experienced staff. The development includes:

- Basement car park containing 26 bays, including one ACROD bay;
- Provision of one large external play area;
- Comprehensive landscaping across the site; and
- Retention of eight trees and the planting of one additional significant tree.

Table 1. Consultant Team

Architect	Hindley & Associates
Town Planning	Element Advisory
Landscape Architect	Urban Retreat Garden Design
Traffic Consultant	Urbii
Waste Consultant	Urbii
Acoustic Consultant	Lloyd George Acoustic

1.1 Planning Approval Required

Development approval is required under the provisions of the *Planning and Development (Local Planning Schemes) Regulations 2015* (as amended) with the development application to be assessed under the requirements of the City of Melville's (the City) Local Planning Scheme No. 6 (LPS 6).

In this instance, it has been elected to opt-in for determination by the Metro-Inner Development Assessment Panel (DAP), in lieu of determination by the City.

2. Subject Site

2.1 Site Details and Context

The subject site comprises two lots on the corner of the St Michael Terrace and Queens Street intersection. It is located within the suburb of Mount Pleasant in the municipality of the City of Melville. The subject site formerly contained two residential dwellings which have been demolished in preparation for this proposal.

The Certificate of Title details for the subject site are summarised in Table 2 below. A copy of the relevant Certificates of Title is enclosed at Appendix A.

Table 2. Certificate of Title

Lot	Street Address	Area	Diagram	Volume/Folio	Registered Proprietor
143	34 St Michael Terrace	1,038m^2	P003149	1118/183	STOCK ROAD LAND PTY LTD
144	36 St Michael Terrace	1,062m^2	P003149	1152/632	STOCK ROAD LAND PTY LTD

Refer to Appendix A – Certificates of Title

The subject site is located with proximity to a range of education, recreation, retail and commercial uses including:

- Opposite Mount Pleasant Primary School;
- 130 metres east of the Mount Pleasant Local Centre;
- 900 metres south east of Westfield Booragoon;
- 900 metres east of Applecross Senior Highschool; and
- 1 kilometre east of Ardross Primary School.

In a wider context the subject site is located approximately eight kilometres south west of the Perth Central Business District (CBD). The site is serviced by a frequent bus stop, which is 200 metres to the east, which provides direct access to East Perth and the Canning Bridge and Fremantle train stations.

Refer to Figure 1 – Site Plan

Refer to Figure 2 – Aerial Plan

Figure 1. Site Plan

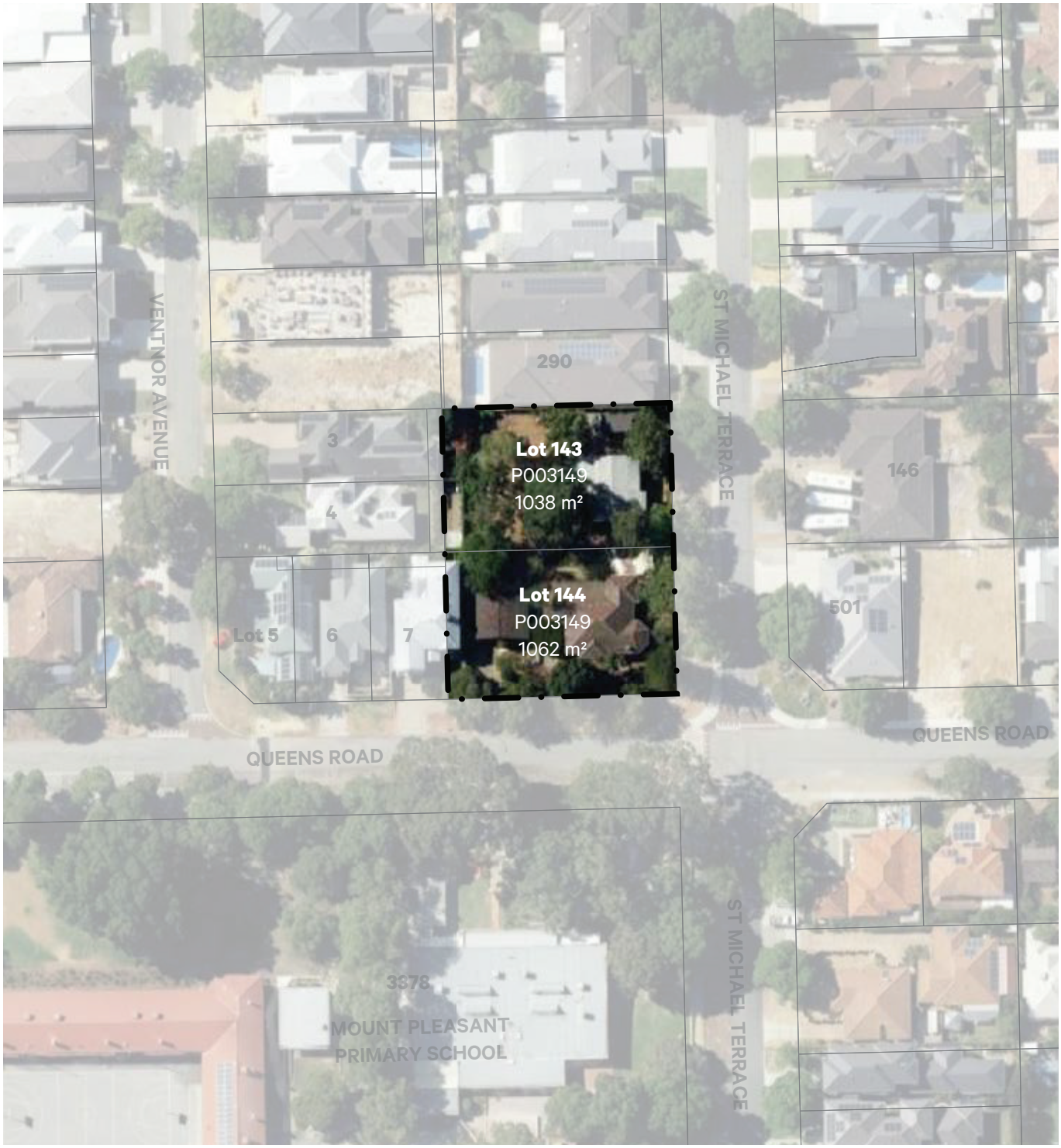


Figure 2. Aerial Plan

2.2 Environmental and Heritage Constraints

2.2.1 Heritage

A desktop search of the Department of Planning, Lands and Heritage's (DPLH) Aboriginal Heritage Inquiry System indicates that there are no places of Aboriginal cultural heritage significance on the subject site.

Searches of the Heritage Council's State Heritage Register and the City's records indicate that there are also no places of European cultural heritage significance on the subject site.

2.2.2 Contamination

A desktop search of the DWER Contaminated Sites Database indicates that the site is not identified as being contaminated.

2.2.3 Acid Sulphate Soils

A desktop search of Department Water and Environmental Regulation (DWER) Acid Sulphate Soil Risk Map, Swan Coastal Plain, indicates the site has no risk of acid sulphate soils.

2.2.4 Bushfire

A desktop search of the Department of Fire and Emergency Services (DFES) Map of Bushfire Prone Areas indicates the site is not within a bushfire prone area.

3. Development Proposal

3.1 Particulars of Proposal

This application seeks approval for a Child Care Premise for 113 children. The key components of the development are summarised in Table 3 below:

Table 3. Development Components

Development Components	Description
Child Care Spaces	**113 total**
0 to 1 Years	12 places
1–2 years	16 places
2–3 years	35 places
3+ years	50 places
Staff	**28 total staff** 25 Educators 1 Chef 1 Manager 1 Assistant Manager
Car Parking	**26 total**
Staff	15 bays
Visitor	10 bays
ACROD	1 bay
Bicycle Parking	8 spaces
Outdoor Play	749m^2
Hours of Operations	6.30am to 6.30pm

Refer to Appendix B – Development Plans

3.2 Access and Car Parking

A Traffic Impact Statement (TIS) has been prepared by Urbii in support of the proposed development and is included at Appendix C.

Existing vehicle access to the site is via two crossovers on St Michael Terrace and one crossover on Queens Road. Vehicle access for the Child Care Centre is proposed via one crossover on St Michael Terrace. Existing redundant site crossovers will be closed as part of the development.

The crossover leads to the basement level parking area which includes a total of 26 bays including 15 staff, 10 visitor and one ACROD. The bays are compliant with the design requirements of the Australian Standards (AS2890.1).

The parking provisions have been assessed in accordance with the requirements of the City's Local Planning Policy 1.6 Parking and Access (LPP1.6). Under the provisions of Table 1 of LPP1.6 the car parking ratios for a 'Child Care Premise' are:

- 1 bay per 10 children; plus,
- 0.5 bays per staff member.

Based on 28 staff and 113 children, a total of 25 (rounded from 25.3 as per 5.3 of LPP1.6) parking bays are required based on the above rate and a total of 26 bays have been provided, satisfying the minimum requirement.

LPP1.6 also requires the provision of motorcycle parking spaces. ABS census data indicates that only 0.2% of education and training workers in the City of Melville travelled to work by motorcycle. This suggests that motorcycle parking is unlikely to be used, and therefore the project proponents propose to prioritise space for the provision of car parking.

Traffic analysis was undertaken to estimate the demand for children's pick-up/drop-off parking. The peak inbound traffic for children's drop-off is estimated to be 40 cars in a 60-minute period with a conservative estimate length of stay of seven minutes.

The traffic analysis undertaken in the TIS demonstrates that the expected traffic generation of the proposed development is moderate (less than 100vph on any lane) and as such would have moderate impact on the surrounding road network.

The TIS also includes a review of the crash history in the vicinity of the site from Main Roads WA and one crash was recorded in the last five years. The low traffic generation of the proposed development is unlikely to impact traffic safety in the area.

Refer to Appendix C – Traffic Impact Statement

3.3 Existing Trees

A Tree Protection Report (TPR) was prepared for the proposed development by Westworks Consultancy and reviewed the quality of the trees proposed to retain on site. The TPR identified 10 trees that are capable of being retained as outlined in the table below.

The project team has identified that eight of these trees can and will be retained. The remaining two trees could not be retained due to issues relating to site works and the provision of a safe level outdoor play area for the child care premises.

Refer to Figure 3 – Identified Tree Location

The TPR identified 10 trees that are capable of being retained including:

Species	Tree Age	Tree Health	Height (m)	Canopy diameter (m)
Jacaranda	Mature	Good	11	12
Rose Gum	Mature	Fair	18	16
Jacaranda	Mature	Good	10	10
Cook Pine	Mature	Good	17	8
Queensland Box	Mature	Fair	8	8
Coral Tree	Semi mature	Fair	7	6
Coral Tree	Mature	Fair	10	10
Common Lilly Pilly	Mature	Fair	15	11
Queensland Box	Mature	Fair	8	8
Dryland Tea-tree	Mature	Fair	9	9

To ensure the trees can be protected during construction of the proposed development the TPR provides recommendations such as:

- Plan and action nearby underground services prior to transplanting or design these services outside the TPZ.
- Install tree protective fencing around each tree, the fencing should be 1.8 metres high and installed so that they cannot be moved.
- The fence should be identified with a TPZ sign to inform workers of the restricted access. The role of these fences is to prevent any damage to the complete tree including root system (SRZ & TPZ), stem and branch structure as well as the crown or canopy.
- Tree protection fencing rules should be included in the site induction for all employees and contractors.
- The recommended watering regime must be maintained as described.
- Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs, and counterweights (including piling rigs), in order to operate without coming into contact with retained trees.

The existing trees are primarily located along the boundary of the proposed outdoor play area, providing a substantial shade canopy that will naturally cool the space and enhance comfort. Additionally, these trees will serve as a natural buffer screening the proposed development from the street while preserving the character of the existing streetscape.

Refer to Appendix D – Tree Protection Report

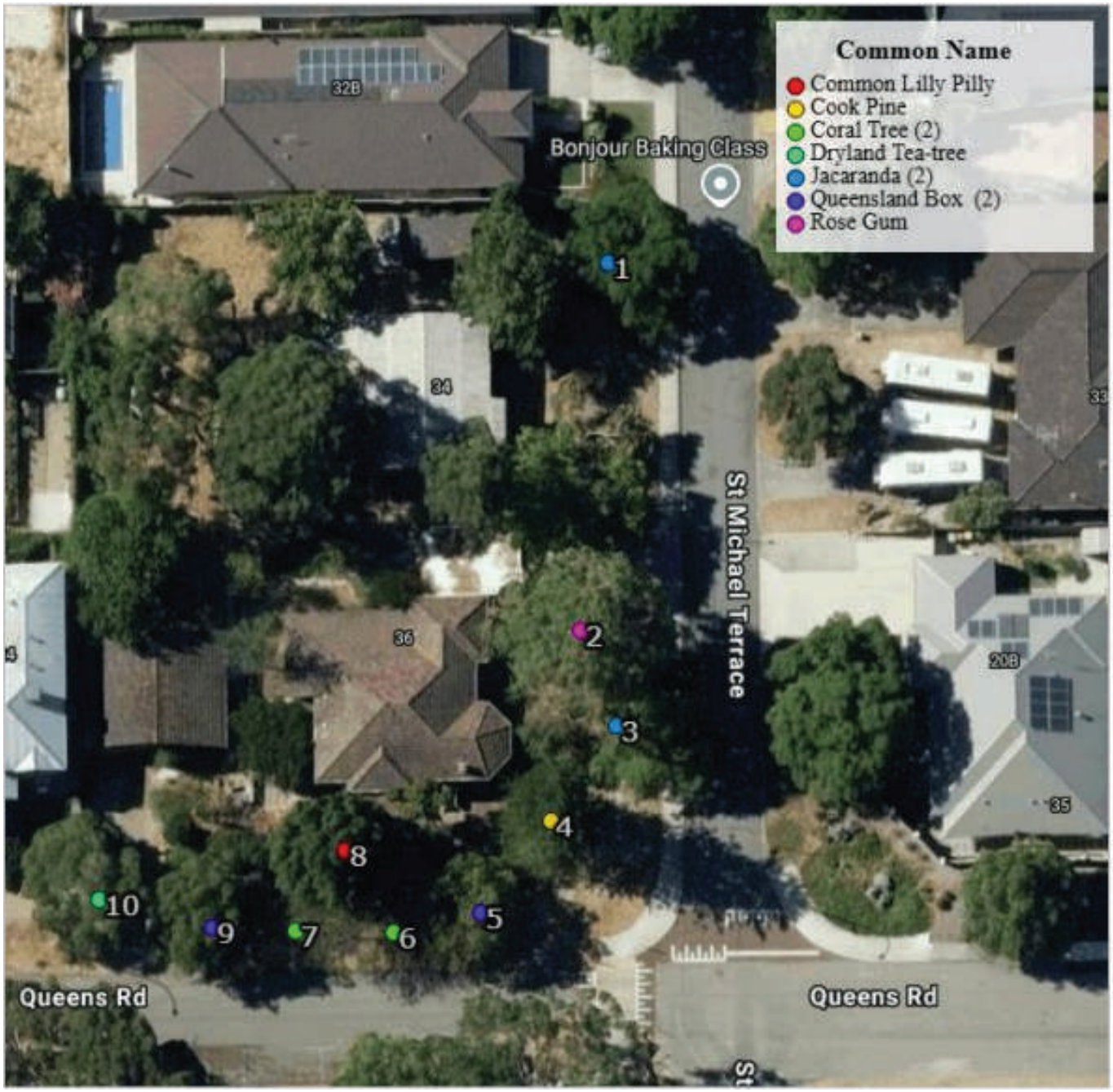


Figure 3. Identified Tree Location

3.4 Landscaping

A Landscaping Concept Plan has been prepared by Urban Retreat Garden Design and has been included at Appendix E.

In accordance with the TPR analysis the development proposes to retain eight existing trees with seven contained within the verge and one within the proposed outdoor play area. The Landscaping Plan includes the addition of a jacaranda tree adjacent to the crossover and numerous shrubs, grasses and ground covering plants proposed along the lot boundaries and surrounding the outdoor play area. The landscape design uses a range of techniques to minimise the impact of the retaining wall and fencing on the streetscape.

The proposed vegetation is native and has been selected to ensure that minimal water usage and maintenance is required.

Refer to Appendix E – Landscaping Concept Plan

3.5 Waste Management

A Waste Management Plan (WMP) has been prepared by Urbii and included at Appendix F. The WMP addresses the estimated waste generation, assessment of waste storage and collection.

Based on a floor area of approximately 843m^2 the estimated waste generation for the development is:

- General Waste: around 2,950L per week.
- Recyclables: around 2,950L per week.

An external bin store is located adjacent to the crossover at the north eastern corner of the site and will contain the following bins:

- 5 x 240L General waste (red lid bin).
- 5 x 240L Co-mingled recycling (yellow lid bin).

Waste is proposed to be collected through the City's existing waste service with collection three times per week from the St Michael Terrace verge.

Refer to Appendix F – Waste Management Plan

3.6 Operating Hours, Noise and Acoustic

An Environmental Noise Assessment (ENA) has been prepared by Lloyd George Acoustics and is included at Appendix G.

The assessment considered noise emissions from outdoor child play, mechanical plant, and car door closures against the requirements of the Environmental Protection (Noise) Regulations 1997. Noise modelling was undertaken using a worst-case scenario, assuming all children are playing outdoors simultaneously. Three fencing options were assessed, all of which achieved compliance at surrounding residential properties, with varying levels of compliance at the adjacent primary school. The preferred option (Option B) was adopted, which includes a 2.1 metres high solid fence along the southern boundary and achieves compliance at the surrounding residential properties.

The development proposes a 2.1 metre high masonry fence with infill slats above, backed with Perspex to ensure compliance with the recommendations of the acoustic reporting.

Mechanical plant noise was found to exceed assigned levels under initial assumptions, however compliance can be practicably achieved by installing acoustic screening and ensuring plant operates in 'night' or 'quiet' mode outside of standard hours. Noise from car door closures was predicted to comply

provided all bays, except for three on the north side, are located under a roofed basement with no openings.

The proposed operating hours are from 6:30am to 6:30pm, with the outdoor play area not in use before 7:00am to ensure compliance with relevant noise regulations and to minimise potential impacts on adjoining residential properties.

Overall, the report concludes that the development can comply with the noise regulations, subject to implementation of recommended design measures, and is therefore suitable from an acoustic perspective.

Refer to Appendix G – Environmental Noise Assessment

3.7 Signage

Indicative signage locations have been provided on the plans and includes a 0.8 metre by 0.8 metre wall sign on both the eastern and southern elevations. An address sign is also included at the vehicular entrance to provide wayfinding for users of the facility. An assessment of the proposed signs is included in Section 5 below.

3.8 Safety and Surveillance

As a private child care facility, security of children is paramount. Security is achieved by a combination of perimeter fencing, walls, and gates. The child care has been designed to promote passive surveillance to St Michaels Terrace and Queens Road with semi-permeable fencing and thoughtful location of play spaces.

Drop off and pick up is proposed to occur centrally within the site, reducing opportunities for children to be walking close to the primary street with secure pedestrian pathways throughout the car park.

The car parking and external portions of the building have been designed to AS2890.1 as confirmed within the TIS. The TIS also confirms that there are no particular site specific safety issues identified for the proposal.

4. Planning Framework and Assessment

4.1 State Planning Framework

4.1.1 Metropolitan Region Scheme

Under the provisions of the Metropolitan Region Scheme (MRS) the subject site is zoned 'Urban' which is an appropriate zoning for a child care centre.

Refer to Figure 4 – Metropolitan Region Scheme zoning

4.1.2 National Early Childhood Development Strategy

The National Early Childhood Development Strategy's aim is to improve outcomes for all children by building a better early childhood development system which responds to the needs of young children, in particular, vulnerable children and their families. The National Early Childhood Development Strategy – Investing in the Early Years (the Strategy) was endorsed by the Council of Australian Governments in 2009. As identified in the Strategy a positive start in life helps children develop to their fullest. The benefits accrue to the whole of society, through enhanced human capital and capacity, increased productivity, greater social inclusion and reduced public expenditure in health, welfare and crime.

The Strategy identifies that more and more families rely on childhood services to support their workforce participation and the choices they make about how they balance work and family responsibilities. Ensuring that existing and future communities have access to the short and long-term community infrastructure that they need, such as child care centres, is a key ongoing planning consideration. The Strategy includes outcomes based on the importance of family, including:

> *"families are confident and have the capabilities to support their children's development quality early childhood development services that support the workforce participation choices of families"*.

This proposal represents an opportunity for the City to facilitate improved infrastructure for child care services which are significant to the sustainability of the local Mount Pleasant community.

4.1.3 Perth and Peel @ 3.5 Million

The Perth and Peel @ 3.5 Million framework is an overarching suite of documents, which builds on the vision established under Directions 2031. The Perth and Peel @ 3.5 million suite of strategic land use planning documents aims to accommodate 3.5 million people in the Perth and Peel regions by 2050 and set out a framework to respond to the deepening and emerging challenges in accommodating the population growth.

The framework acknowledges that future infill residential development will place further demand on existing school sites within established urban areas and continued consideration must be given to the number of high school and primary schools required to service this growing demand. An important precursor to primary and high schools are child care facilities that meet emerging community needs and therefore continued consideration must also be given to the adequate provision of these early childhood services.

Figure 4. Metropolitan Region Scheme zoning

A key objective relating to the provision of Community and Social Infrastructure sets out:

> *To provide a wide range of community and social infrastructure to enhance the health and wellbeing of the community and meet the com- munity's needs including health, education, sport and recreation, while promoting co-location and optimising the use of existing facilities and infrastructure.*

Due to the proposal being located in close proximity with the nearby Mount Pleasant Primary School and Ardross Primary School, it will meet the needs of the growing community in a strategic educational hub location and will help establish a sense of social cohesion in line with the strategic direction of Perth and Peel @3.5 Million.

4.1.4 Central sub-Regional Framework

The Central Sub-regional Planning Framework (the framework) is one of four frameworks prepared for the Perth and Peel regions and includes the area of the City of Melville. The framework aims to bring people and places of activity within easy reach of each other and make better use of existing infrastructure and amenities.

The framework promotes higher densities and a diversity of housing and employment that will meet the needs of future generations and enhance Perth's reputation as an attractive place to live. In Perth's Central Sub-Region, it anticipates the population will increase from 782,947 (2011) to 1.2 million (2050); with the area needing approximately 780,000 (2050) jobs, up from 546,121 (2011).

Planning for social infrastructure to support the anticipated growth is recognised as an important deliverable and in relation to education the framework states:

> *The expected population growth within the Central sub-region will necessitate the development of a number of new public schools or the provision of additional accommodation at existing sites...Part of the solution will involve ensuring that there is a sufficient number of land holdings across the Perth and Peel regions available for educational facility purposes and investigating new approaches to the built form of new school buildings and facilities.*

The proposed development is broadly consistent with the aims of the framework in that it represents an extension to the educational infrastructure within the City. It will also greatly improve a currently underutilised site and provide an important piece of social infrastructure to meet the existing and emerging needs of the local community. The early learning centre will also assist in providing additional local jobs, which will contribute to meeting anticipated employment targets.

4.1.5 Planning Bulletin 72/2009 'Child Care Centres'

The Western Australian Planning Commission (WAPC) published WAPC Planning Bulletin 72/2009 'Child Care Centres' (the Planning Bulletin) in August of 2009. The Bulletin sets out that whilst there is some evidence of an oversupply of child care services in many outer urban areas across the Perth Metropolitan Region, there is evidence of unmet demand in areas of high land value (where the need for these facilities is often greater), such as in or around the central business district, where there has been minimal development of new child care centres.

The proposed child care premise is considered a desirable land use in its broader context. The Planning Bulletin acknowledges the trend that broadly, existing child care centre activities are located in residential areas. The Planning Bulletin also provides criteria to guide the location of future child care centres.

The location of the proposed development aligns with many of the criteria as identified in the following table with comments provided in relation to compliance against these Planning Bulletin criteria:

Table 4. Planning Bulletin Assessment

Development Component	Description
distributed strategically to provide the maximum benefit to the community it serves	The proposed child care is located opposite Mount Pleasant Primary School, 130 metres east of the Mount Pleasant Local Centre, 900 metres south east of Westfield Booragoon, 900 metres east of Applecross Senior Highschool and 1 kilometre east of Ardross Primary School.
within easy walking distance or part of appropriate commercial, recreation or community nodes and education facilities.	As above, the site is well situated between a variety of uses such as two primary schools, a high school and local centre. As such, the proposed child care premises will be highly accessible by foot and in a convenient location for Mount Pleasant residents.
located in areas where adjoining uses are compatible with a child care centre.	The site is located directly opposite a primary school and less than 150 metres from a local centre. It is suitably located near a bus service as well as being within close proximity of two local primary schools. Careful consideration has also been given to a site responsive design that will protect the amenity of adjoining residential properties.
serviced by public transport.	The site is located 200 metres from a bus stop providing convenient and frequent public transport access to Fremantle and Perth City.
considered suitable from a traffic engineering/safety point of view.	A TIS has been prepared in support of the application and is included at Appendix C. The TIS identifies that there is appropriate capacity within the local road network to accommodate the use and the size of the proposed development and that the site access arrangements are appropriate.
of sufficient size and dimension to accommodate the development without affecting the amenity of the area.	113 children are proposed to be catered for within the proposed development which is a relatively common scale for modern child care premises due to key operational efficiencies associated with high quality purpose built centres and high service demand. The proposal has been supported by extensive technical reporting which appropriately addresses the ability for the site to accommodate the intended 113 children.

4.1.6 Draft Position Statement: Child Care Premises

A Draft Position Statement: Child Care Premises (the Draft) was prepared to guide the development of child care premises to better meet the community's changing needs and was advertised to the public from 11 November 2022 to 10 February 2023 and recently reopened for advertising in April 2025 to June 2025. The draft position statement updates the Planning Bulletin 72 Child Care Centres (August 2009) and aims to provide decision-makers, proponents and the community with a consistent policy approach to planning for child care premises in Western Australia.

An assessment against of the proposed development against the proposed objectives has been provided below:

Table 5. Draft Position Statement Assessment

Key Improvements	Description
That child care premises be appropriately located and designed to ensure the health and safety of children.	The proposed development has been designed to ensure the safety of the users within and around the site through considered design. Pedestrian safety is provided through the provision of a separated access, away from the vehicular crossover. Clear way finding strategies have been implemented such as signage to ensure access to the site is clear and to reduce confusion.
To support small or medium child care premises in residential zones which are compatible with, and do not have an unreasonable impact upon, the amenity of adjoining and nearby residential area.	The subject site is located in a residential zone opposite Mount Pleasant Primary School, 900 metres east of Applecross Senior Highschool and 1 kilometre east of Ardross Primary School. The site is located with good proximity to a number of schools, making it convenient for parents with children across age groups to use both the proposed childcare centre and one of these local primary schools.
To support the co-location of small, medium, large, or extra-large child care premises on compatible government reserves and commercial, mixed use and similar type zones.	As the proposed child care is located within a residential zone this objective is not relevant to this proposal.

4.1.7 State Planning Policy 7.0 Design of the Built Environment

As is good practice with all projects in Western Australia, the State Planning Policy 7.0 – Design of the Built Environment (SPP7.0) provides a set of good design principles to inform and guide the development of good design outcomes in the built environment. This section summarises the key aspects of each design principle and provides a response demonstrating how the proposed Child Care premises meets each principle.

1. Context and character

Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.

St Michael Terrace exhibits a predominantly residential character, featuring a mix of single and two storey detached dwellings. The architectural styles vary reflecting periods of incremental redevelopment. While some older post-war homes remain, many lots have been redeveloped with contemporary homes that display modern materials, neutral colour palettes, and high-quality finishes.

The proposed building references the local context, incorporating a contemporary built form featuring a pitched roof, weatherboard cladding and masonry fencing. The use of domestic-scale materials, landscaping, and a single-storey presentation to the street ensures compatibility with the local character and streetscape.

Refer to Figure 5 – Front facade incorporating local contextual elements

Refer to Figure 6 – 30 St Michael Terrace, demonstrating local design features

Figure 5. Front facade incorporating local contextual elements

Figure 6. 30 St Michael Terrace, demonstrating local design features

2. Landscape quality

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.

Soft landscaping has been thoughtfully woven throughout the design of the child care centre to create a welcoming, natural setting that softens the built form and enhances the experience for children, staff, and visitors.

The carefully selected planting palette features a mix of native trees, shrubs, and ground covers that provide year-round interest, softening the built form and contributing to the leafy character of Mount Pleasant. Existing mature trees are retained where possible, and the integration of natural landscaping within the play areas ensures a sensory-rich, shaded, and inviting outdoor space for children.

The design balances aesthetics and function, with deep soil zones, mulched garden beds, and an automated sub-surface irrigation system to support healthy growth and long-term sustainability. Thoughtful planting along site boundaries helps screen neighbouring properties and promotes privacy, while the use of hardy, low-maintenance species ensures the space remains vibrant and resilient. Overall, the landscaping contributes significantly to the amenity, character, and environmental quality of the site.

Refer to Figure 7 – Existing mature verge trees to remain.

3. Built form and scale

Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.

The built form is modest in scale and presents as single storey to St Michael Terrace. It respects the height and massing of neighbouring dwellings and minimises visual bulk through articulation, setbacks, and variation in materials. The design carefully manages transitions to adjoining residential properties.

Refer to Figure 8 – Proposed streetscape elevation demonstrating single storey built form.

The highest point of the development, the pitched roof, is thoughtfully set back from the street to reduce perceived building bulk and maintain a comfortable sense of scale within the residential streetscape. The entry has been designed to reflect the surrounding residential character, featuring warm, timber battens that create a visually open and inviting arrival experience. This treatment softens the built form, allows natural light to filter through, and offers glimpses of the building beyond, ensuring the façade feels light, approachable, and well-integrated with its context.

4. Functionality and build quality

The materials palette for the Childcare building is an extension of the housing palette but used in a different way in response to the different use and very different building form.

The materials palette has been chosen in response to the core principles of local area suitability, quality expression, low maintenance and appropriateness for a childcare facility. The primary construction material for the development is rendered brickwork with painted weatherboard cladding and feature brickwork for texture.

These materials produce a high-quality build which effectively meet the requirements for a childcare centre whilst also produce a soft disposition on the site. These materials also hold great durability properties and are easily managed and maintained.

Figure 7. Existing mature verge trees to remain

Figure 8. Proposed streetscape elevation demonstrating single storey built form.

5. Sustainability

Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.

Solar passive principles were actively considered in the design process to produce the best outcomes for the development itself but also with high consideration for development within the context of the site. This includes not only the placement of the building on the site but the orientations of the spaces within.

Passive design principles have been incorporated, including natural ventilation, solar access, and shading to outdoor play areas and basement parking. Landscaping supports urban cooling and water efficiency through the retention of significant trees. Opportunities for sustainable travel are provided through bicycle parking and end-of-trip facilities for staff.

6. Amenity

Good design provides successful places that offer a variety of uses and activities while optimising internal and external amenity for occupants, visitors and neighbours, providing environments that are comfortable, productive and healthy.

The entry is a welcoming and covered space which provides protection form the elements whilst also optimising accessibility for wheelchairs and prams with the inclusion of a ramp. Window placements are carefully positioned to avoid overlooking into the neighbouring areas.

Play space orientation has been carefully considered. Under croft parking allows for safe and separate vehicular access to pedestrians. Each internal play space is provided with natural north facing light while retaining levels of privacy through a degree of separation from views to neighbouring properties. The play spaces are sized adequately to meet the childcare development requirements whilst also providing natural ventilation.

Carefully considered placement of the administrative internal spaces, with the entry and office facilities on the eastern side of the building facilitates passive surveillance whilst providing uninterrupted circulation between spaces for the children.

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 design prioritises pedestrian movement with the inclusion of connecting footpaths. The basement parking strengthens safety and ensures there is no disruption in the pedestrian circulation of the site.

The entrance points have been well designed to allow truly identifiable entry areas, with separate vehicular access.

Pedestrian circulation spaces are identifiable by use of paved surfaces, landscaping and signage promoting easy navigation. The building is externally well defined through its use of material differentiation which determines the interior programme.

8. Safety

Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.

The office and reception area are positioned above the vehicle access maximising opportunities for passive surveillance to the main entry point on St Michael Terrace. Furthermore, sightlines have been considered and strengthened through the use of glazed doors, allowing for passive surveillance from internal areas to external play areas.

Landscaping provides a soft barrier between public and private spaces, whilst also providing a buffer zone to the surrounding road network.

Basement parking ensures users are entering the site for purpose of utilising the childcare centre only.

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 whole intent of the development is to provide a service to the community. Childcare centres are an integral part of each community and allow for the early education and care of children whilst the parents and guardians can return to work, which is almost essential in today's economic climate.

The proposal is co-located with other community uses such as the Mount Pleasant Primary School which will foster greater opportunities for community interaction in the area for young families, especially those dropping children off at both the childcare premises and the primary school as it will require more interaction with the other parents and staff of both facilities.

10. Aesthetics

Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.

The proposed childcare development is a well-conceived design using a variety of complementary materials, not only to each other, but also to the surrounding context. The design goes above and beyond meeting the communities' requirements for childcare facilities, providing efficiently designed spaces that harness daylighting, natural ventilation and orientation that facilitate and strengthen the development of its intended user.

The development responds to the topographical requirements of the site with the inclusion of a series of connected pathways and provides a concise entry statement and awareness.

The proposed landscaping complements the surrounding area, whilst providing additional green amenity to the surrounding environment, enhancing both the street presence and interaction.

5. Local Planning Framework

5.1 City of Melville Local Planning Strategy

The Local Planning Strategy (LPS) is the key strategic urban planning document for the City and defines a framework of land uses and activities and provides a broad statement of intent to guide integrated and sustainable planning and development in the City over the period 2012 – 2031 and beyond.

The Local Strategy provides the following estimates in respect to projected demand for child-care services:

> *The residents of the City of Melville are well supplied with community facilities. The current facilities are adequate for the anticipated population growth in most areas. The two areas that anticipate an increase in facilities is in the area of Child Care and aged housing. There will be a need to consider opportunities to encourage both a diversity of housing and innovation in the supply of housing to cater for the needs of the aging population. It will also be important to consider the opportunities for Child Care within the reviews of future Local Planning Schemes to ensure adequate facilities are available for the growing number of families. Monitoring the population projections in these areas will ensure the growth in facilities anticipates the growth in population.*

The proposed development will aid the City in achieving this vision by providing a quality infrastructure which benefits the community and provides a much need resource for young families and will provide more employment, economic and social opportunities for residents of all ages.

5.2 City of Melville Local Planning Scheme No. 6

The City's LPS 6 was gazetted in May 2016 and is the primary planning control guiding development within the City. Under LPS 6, the lot is zoned 'Residential' with a density code of R25.

Refer to Figure 9 – Local Planning Scheme zoning

The proposed child care facility is defined as 'Child Care Premise' under LPS 6 as follows:

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

A 'Child Care Premise' is an 'A[1]' use in the 'Residential' zone under the zoning table of LPS 6, which means that the use is not permitted unless the local government has exercised its discretion by granting planning approval after advertising the application in accordance with Cl.64 of the Planning and Development (Local Planning Schemes) Regulations 2015 (the Regulations). This means the proposed use is capable of approval on the subject site under the applicable local planning scheme.

When considering the appropriateness of the land use within a zone it is important to consider the objectives of the relevant zone. The objectives of the 'Residential' zone and how the development is compatible with the corresponding objectives is outlined in the planning discussion section of this report.

Refer to Figure 9 – Local Planning Scheme Extract

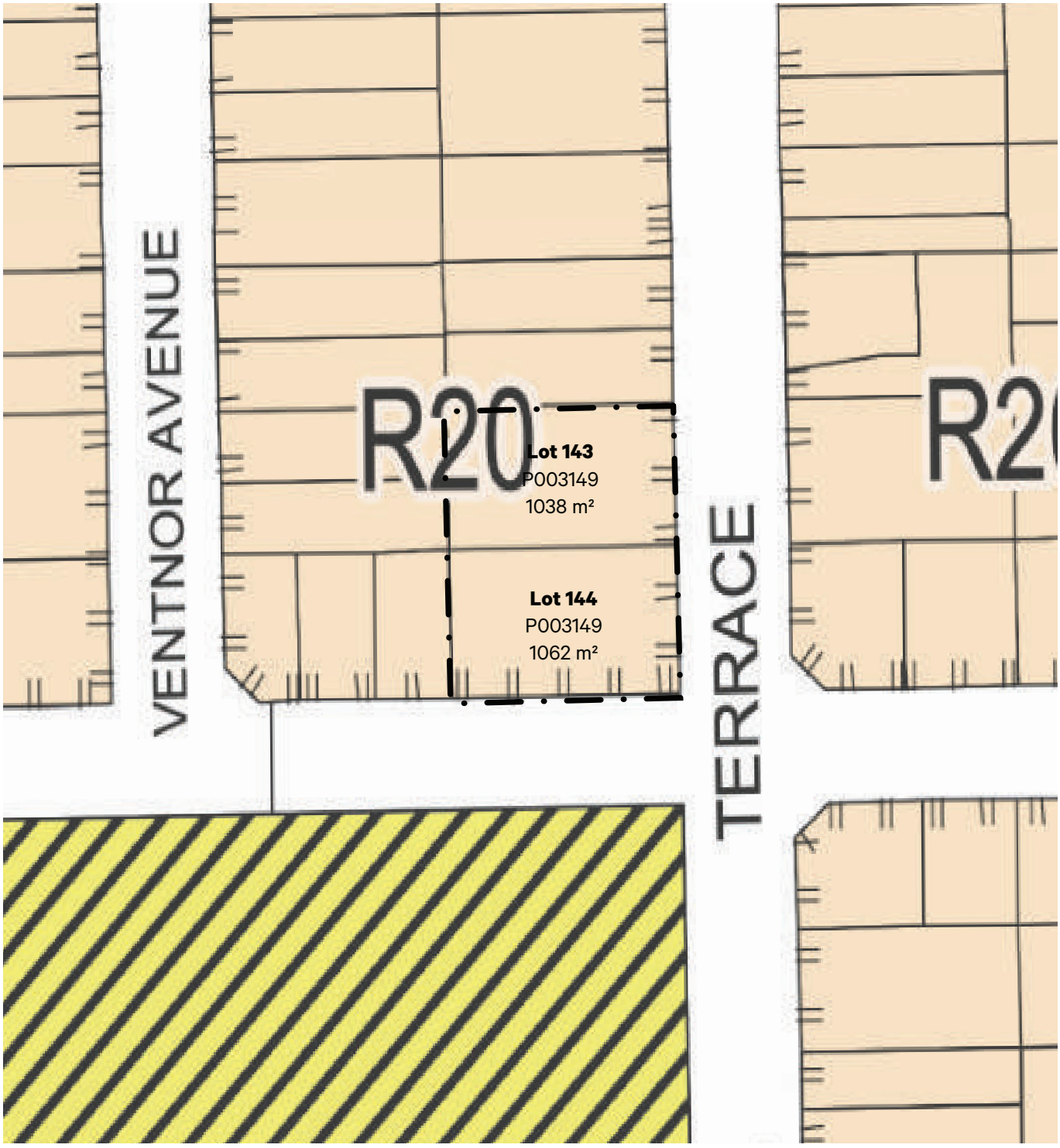


Figure 9. Local Planning Scheme Extract

5.3 Planning and Development (Local Planning Scheme) Regulations 2015

Clause 67(2) of Schedule 2 of the Regulations specifies the other matters that may be taken into consideration by the local government when assessing/determining a development application. The relevant provisions to this development are listed and discussed in Table 6 below:

Table 6. Clause 67(2) Assessment

Relevant Provisions	Response
(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;	This is discussed later within the 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 Regulations or any other proposed planning instrument that the local government is seriously considering adopting or approving;	An assessment against LPP1.6 has been included in the assessment. The development has been designed and located in reference to the in-force planning framework at the time of preparation of this development application to ensure that the requirements of orderly and proper planning are adhered to.
(c) any approved State planning policy;	Please see state planning framework discussion above.
(d) any policy of the Commission;	Please see state planning framework discussion above.
(fa) any local planning strategy for this Scheme endorsed by the Commission;	Please see LPS discussion above.
(g) any local planning policy for the Scheme area;	Please see local planning policy discussion below.
(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* *ii. 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;*	The proposed development has been designed to manage its impact on the neighbouring residential and commercial properties in regard to privacy, noise, bulk and scale. The proposed building is single storey, provides landscaping and fencing to the street front to help reduce visual impact, car park is screened from the street within the basement and designed to manage noise impacts.

Relevant Provisions	Response
(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;*	The provision of the child care facility will ensure that the community receive a convenient service for the young families. The site has been underutilised for some time. The development has been planned to respect and activate the streetscape and will manage any potential amenity impacts on the surrounding residential property owners.
(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;	A Landscaping Plan has been prepared and included at Appendix E. Eight existing trees are proposed to remain and one new tree is proposed near the crossover. Landscaping to play areas will be subject to future design.
(r) the suitability of the land for the development taking into account the possible risk to human health or safety;	The proposal sufficiently addresses any risks to human health or safety by providing designated pedestrian access which is separated from the vehicle entry and movement area.
(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;*	The proposed access for pedestrians and vehicles associated with the child care premises has been addressed in the TIS and WMP provided at Appendices C and F respectively. The development has been designed to accommodate safe access to the proposed parking for service vehicles, staff and visitors.
(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;	The TIS has analysed the existing and proposed traffic scenarios and has adequately demonstrated existing capacity within the local road network to allow for this development. The development will therefore not have a significant impact on the surrounding road network as the increased traffic flow will not be beyond the capacity of the network.

Relevant Provisions	Response
(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 subject site is conveniently serviced by public transport within 200 metres along Reynolds Road providing access to Fremantle and East Perth stations. The storage, management and collection of waste has been addressed within the WMP provided at Appendix F as detailed in earlier sections of this report. The development can be serviced using existing service infrastructure, contains end of trip facilities for staff and is accessible to all persons and abilities.
(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 proposal will have no perceivable detrimental impact on the existing levels of community services or benefits and will serve to enhance accessibility to high quality child care services.
(x) the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;	It is anticipated that the development application will be made available for community consultation. The development is situated in an appropriate location and has been designed to minimise any potential adverse impacts on immediate neighbours and the community by using sensitive site planning and a compatible built form. The use will provide an important addition to the community in close proximity to existing community and educational premises.

5.4 Local Planning Policies

5.4.1 Local Planning Policy 1.4 Provision of Public Art in Development Proposals (LPP 1.4)

The City's current and draft LPP 1.4 seeks to assist in achieving the goals of the City's public arts scheme for non-residential developments over $2 million. It is intended, following detailed design to contract a professional artist to deliver the work with the specifics to be addressed during detailed design. We anticipate that an appropriate standard condition can be applied in relation to this matter.

5.4.2 Local Planning Policy 1.6 Car Parking and Access (LPP1.6)

LPP1.6 applies in respect of car parking requirements for non-residential land uses. An assessment of the proposed development against the relevant policies of LPP 1.6 has been provided in Table 7 below.

Table 7. LPP 1.6 Assessment

Requirement	Proposed	Compliance
Access		
Vehicular access points to parking facilities are to be located and designed so that:		
Access is via secondary streets or rights of way where available.	The site is located adjacent to the St Michael Terrace and Queens Road intersection, however access is only available via St Michael Terrace.	Complies
Access to developments on corner lots should be located the maximum distance away from the corner on the minor road or right of way.	The development proposes to use the existing crossover along St Michael Terrace and remove the additional two crossovers.	Complies
One access point per street is encouraged and the number of access points is kept to a minimum.	One access point is proposed to the proposed child care centre and provides two-way access.	Complies
All vehicles utilising on-site car parking bays should be able to enter and exit in a forward gear where practicable.	The basement car park is designed to ensure vehicles can exit and enter in forward gear.	Complies
Where possible, new parking facilities and access points are to be linked to existing parking facilities.	The site is currently vacant but formerly accommodated two single dwellings. The proposal reduces the total number of vehicle crossovers from 3 to 1. The proposed crossover location is located to avoid the existing street tree and provide safe and convenient access to the site.	Complies

Requirement	Proposed	Compliance
Access points shall be designed to minimise: *(i) traffic or pedestrian hazards,* *(ii) conflict with pedestrian/cyclist pathways,* *(iii) the impact on nearby residential uses,* *(iv) traffic congestion, and* *(v) interference with public transport facilities.* *Where this is not possible, mitigation measures must be considered.*	The parking area has been designed to ensure separate vehicle and pedestrian movements are provided for the safety of all patrons. The development will utilise the existing crossover to reduce potential traffic impacts.	Complies
Parking Design		
The design of parking facilities should comply fully with the relevant Australian Standards.	The proposed car park has been designed to Australian Standards.	Complies
Entry and exit points and vehicle circulation patterns are to be clearly indicated.	The proposed vehicle entrance is clearly identifiable from the street.	Complies
Car stacking systems or other such systems may be supported subject to the submission of a parking management plan detailing the operation of the system.	No car stacking is proposed	Not applicable
The design of entrances and exits and the position of parking control equipment (in the case of public car parks) shall prevent on-street queuing of vehicles seeking entry to a parking facility and minimise disruption to pedestrians and traffic flows.	The car park has been designed to accommodate the expected number of vehicles and should negate the need for patrons to cue on the street.	Complies
Design of a parking facility including internal circulation roadways and ramps within a public or private car park shall be designed in accordance with AS 2890.1.	The proposed car park and access ramp has been designed to Australian Standards.	Complies
Sightlines		
Sight lines and visual truncation requirements for exiting vehicles shall be designed in accordance with Clause 3.2.4 and Figure 3.3 of AS 2890.1:2004.1 (as amended).	The proposed crossover and access ramp has been designed to Australian Standards.	Complies

Requirement	Proposed	Compliance
On Site Car Parking		
Car parking bays are to be provided in accordance with the ratios set out in Table 1 below for: *(a) all new developments*	Child Minding Centres = One bay per 10 children, plus 0.5 bays per staff member, and drop-off and pick-up area to the satisfaction of the Council. The development proposes 113 children and 29 staff, resulting in a requirement for 25.3 bays. Under the provisions of Clause 5.3 of LPP1.6, where there is a requirement for a part bay, the required number of bays should be rounded to a whole number. This results in a total requirement of 25 bays. The development proposed 26 bays.	Required:25 Proposed: 26 Complies
Universal parking bays *(a) Car parking bays marked exclusively for use by drivers with disabilities at the rate specified in the Building Code of Australia and relevant Australian Standard (AS28990.1) are to be provided.* *(b) These bays are included within the car parking requirements set out in Table*	An ACROD bay is provided within the proposed car parking area.	Complies
Tandem parking bays will generally only be accepted where the two bays are provided for the use of a single tenancy and where the use would allow for this practice.	10 tandem bays are proposed and are exclusively for staff parking, located behind a locked gate and will not be used by visitors.	Complies
On-site parking should be located behind the building line or within the building where possible. Parking within the front setback area of a development is discouraged.	The development proposes a basement carpark beneath the childcare building with access from St Michael Terrace. The parking area is screen from the street due to the topography of the site with bays located behind the building line.	Complies
Service or Loading Bays		
For developments with a NLA of greater than 500m² at least one service or loading bay shall be set aside and marked for the exclusive use of service, delivery and courier vehicles between 7am – 7pm each day.	No service or loading bays are proposed.	Not Applicable
The bay(s) are to be of a suitable size and location for the nature of the land uses proposed.	No service or loading bays are proposed.	Not Applicable

Requirement	Proposed	Compliance
Motorcycle / scooter parking bays		
Where 15 or more car parking bays are provided on a development site, motorcycle / scooter parking bays are required to be provided in accordance with Table 2 below.	Two (2) motorcycle bays are required however, no motorcycle bays are proposed as part of this development.	Variation proposed. See comments below.
Where motorcycle / scooter parking bays are required, one of the car parking bays required by Table 1 above, can be replaced for each of the two motorcycle / scooter bays.		
Bicycle Parking Facilities		
A minimum of two bicycle parking facilities are to be provided on a subject site unless a greater number is specified in Table 3 below.	Child Minding Centres = 2 per 10 car parking bays The development proposes 26 parking bays, meaning 2.6 bicycle bays are required. The development provides eight (8) bicycle bays and end-of-trip facilities.	Complies
The ratios specified in Table 3 below are to be applied based upon the car parking bays that the development requires in Table 1 less any variations that are permitted by Part 6 of this policy.	The proposed development complies with the minimum bicycle bays requirements.	Complies
Bicycle spaces are to comply with Australian Standard AS 2890.3: Parking facilities – Bicycle parking facilities (as amended) and are to be conveniently and safely located.	The bicycle parking has been prepared in accordance with the Australian Standards.	Complies
End of trip facilities are required where more than 6 bicycle spaces are required by Table 3 above, as follows: *(a) A minimum of one locker for each bicycle space;* *(b) A minimum of one unisex shower and change room. Additional shower facilities are to be provided at a rate of one female shower and one male shower for every additional 10 bicycle parking bays, to a maximum of five female and five male showers per development.* *(c) The end of trip facilities are to be located as close as possible to the bicycle parking facilities.*	End-of-trip facilities are provided and include a shower, change room and lockers. The end-of-trip facilities are located adjacent to the staff room and the bicycle parking is located to the north of the vehicle crossover.	Complies Variation Proposed

As outlined above, the proposed development requires a performance assessment in relation to two matters, these being motorcycle/scooter parking and the location of the end of trip facilities.

Motorcycle/Scooter

In relation to motorcycle/scooter parking a total of two (2) bays are required and none have been provided. A TIS has been prepared in support of the development and concludes that ABS census data indicates that only 0.2% of education and training workers in the City travelled to work by motorcycle. This suggests that motorcycle parking is unlikely to be used, and therefore the project proponents propose to allocate the additional space to the provision of car parking.

Refer to Appendix C – TIS

End of Trip location

The proposed design provides the bike parking bays in a convenient location in the car park, close to the entrance. This allows easy access for staff and visitors ensuring they do not need to navigate through the car park.

The end of trip facilities, including shower, lockers and change room are all located close together. This allows staff to quickly and conveniently use the end of trip facilities and provides easy access to staff amenities such as the fridge, sink and microwave.

The location of the bike parking and end of trip facilities are convenient for all users and are consistent with the intent of LPP1.6.

5.4.3 Local Planning Policy 1.10 Amenity Policy (LPP 1.10)

LPP 1.10 has been prepared to ensure proposed developments have regard to the potential amenity impacts that may result from the proposal. The childcare centre has been designed to be site responsive, respect the amenity of neighbouring residential properties and contribute positively to the streetscape. This is achieved whilst providing an important and much needed community service within a well-established residential catchment. The proposed development plans have been assessed against the built form requirements of SPP 7.0, please refer to the section above for the full assessment.

5.4.4 Local Planning Policy 1.12 Child Minding Centres and Family Day Care (LPP 1.12)

LPP 1.12 has been prepared to provide for the establishment of child care and family day care premises within the City of Melville, whilst ensuring that their location, siting and design is compatible with the surrounding built form and avoids significant adverse amenity child health and safety impacts.

An assessment of the proposal against the relevant items is provided in Table 9 below:

Table 8. LPP 1.12 Assessment

Child Care Premise and Family Day Care		
Requirement	**Proposed**	**Compliance**
1.0 Location		
(a) Corner sites – to improve the ability for access and to limit the impacts upon adjoining residential properties.	Subject site located immediately adjacent to the corner of St Michael Terrace and Queens Road.	Complies
(b) Within a walkable catchment, of activity centres, workplaces, schools, community facilities, public open space and civic facilities.	– Opposite Mount Pleasant Primary School; – 130 metres east of the Mount Pleasant Local Centre; – 900 metres south east of Westfield Booragoon; – 900 metres east of Applecross Senior Highschool; and – 1 kilometre east of Ardross Primary School.	Complies
(c) Well served by footpaths, dual access paths and public transport.	Existing footpath and bicycle path on St Michael Terrace. 200 metres west of a frequency bus route on Reynolds Road.	Complies
(d) Of adequate size to provide suitable areas of play space (both indoor and outdoor) and parking.	Generous 2,100m^2 block.	Complies
(e) Located on Local Distributor and District Distributor Roads;	Located on a local road.	Complies
Undesirable characteristics are:		
(a) Sites within cul-de-sacs.	NA	
(b) Sites with battleaxe access leg (or similar) configuration or shared access.	NA	

Child Care Premise and Family Day Care		
Requirement	**Proposed**	**Compliance**
(c) Sites located on the following Primary Distributor roads, Canning Highway, Leach Highway and South Street, in order to minimise the potential for harmful traffic fumes, excessive noise levels and road safety risks impacting on the health of children, staff and visitors to the child care centre and surrounding road users.	NA	
2.0 Siting and Design		
2.1 Where a Child Care Premises is located in a Centre, Mixed Use, Service Commercial or Private clubs, institutions and places of worship zones, the design should respect and be compatible with existing and future development within the immediate surrounding area taking into account the planning framework such as LPS6, Activity Centre Plans and local planning policies.	NA	
2.2 Where a Child Care Premises is proposed within a Residential zone, the design and resultant built form will be assessed against the relevant provisions of LPS6, the R-Codes (for open space, setbacks, visual privacy and overshadowing) and local planning policies. This will ensure such development is compatible with the residential character of the area.	An assessment against the relevant R-Codes is provided in the section below. The built form has been designed to reflect the existing residential character of the locality with the inclusion of weatherboard cladding, pitched roof and masonry fencing.	Complies
2.3 Fencing along the primary and secondary street (if applicable) should be of permeable design in accordance with the R Codes and Local Planning Policy. Solid fencing portions will be assessed on their individual merit taking into account the need for noise mitigation and security.	Semi-permeable masonry fencing is proposed to the primary and secondary streets. To achieve noise compliance clear perplex has been applied to the infill slats to reduce acoustic impact on adjoining school and residential dwellings.	Complies
3.0 Noise and Amenity		
3.1 Where a Child Care Premises is proposed to be located adjacent to residential property(s), an acoustic impact assessment shall be requested to demonstrate that the proposal will satisfy the relevant noise regulations.	An Environment Noise Assessment Report has been prepared in support of the proposal and is included in Appendix G.	Complies

Child Care Premise and Family Day Care		
Requirement	**Proposed**	**Compliance**
3.2 Outdoor playing spaces should be sited to minimise any adverse noise impact towards occupiers of adjoining residential properties.	The outdoor play area has been located away from directly adjoining neighbours to minimal acoustic impact. The proposed street fencing will further reducing acoustic impacts on residential dwellings across the street and the school.	Complies
4.0 Landscaping		
4.1 A landscaping plan detailing all hard and soft landscaping, including shade structures shall be provided with a development application.	A Landscaping Plan has been prepared and included at Appendix E.	Complies
5.0 Car Parking and Traffic Generation		
5.1 Car parking shall be provided in accordance with Local Planning Policy LPP1.6 Car Parking and Access.	Ratio – Child Minding Centres One bay per 10 children, plus 0.5 bays per staff member, and drop-off and pick-up area to the satisfaction of the Council. 113 children proposed = minimum 11.3 bays required 28 staff = minimum 14 bays required 26 bays proposed.	Complies
5.2 Parking areas must be sited and designed to allow vehicles to enter and exit in forward gear.	The TIS determined that there is enough visitor parking to negate the requirement for a turnaround bay.	Complies – to be backed up with TIS
5.3 Planning applications for new Child Care Premises, and those that propose to increase numbers within existing child care premises by more than 10 additional children, must be accompanied by a Transport Statement prepared by a suitably qualified and experienced traffic engineer. Proposals will not be supported if the form, function and safety of the surrounding road network is deemed to be compromised.	A TIS has been prepared in support of the proposal and is included in Appendix C.	Complies

Child Care Premise and Family Day Care		
Requirement	**Proposed**	**Compliance**
5.4 Use of car stackers or tandem parking arrangements is considered not desirable".''	Tandem parking is proposed in the staff parking area and will be secured behind a locked gate and clearly marked. The use of the tandem bays by staff only allows these to be managed without any impacts on the surrounding land owners or the street network.	Performance Solution.
6.0 Hours of Operation		
6.1 Where a Child Care Premises is located adjacent to a property used for residential purposes, the hours of operation of the premises may be limited to 7am to 7pm Monday to Friday and 8am to 7pm during weekends. Note: The limit on hours of operation does not prevent staff attendance outside of the operating times.	The proposed hours of operation are 6.30am to 6.30pm to allow for use by shift workers who need early access to day care places. Despite opening at 6.30am, it is only anticipated that a small number of users will use the service from this time and the use of outdoor play areas will be limited until after 7am.	Performance Solution
7.0 Signage		
7.1 The City's requirements for advertising and signage are outlined in Local Planning Policy LPP2.2 Outdoor Advertising and Signage.	Indicative signage locations have been provided on the proposed elevations.	Refer to below assessment.

5.4.5 Local Planning Policy 2.1 Non-Residential Development (LPP 2.1)

LPP 2.1 applies to all non-residential development within the City and an assessment of the proposed development against the relevant requirements is provided below:

Table 9. LPP 2.1 Assessment

Requirement	Proposed	Compliance
Building Design		
Development should: *Be orientated towards the primary street frontage*	The building frontage is orientated towards St Michael Terrace which is nominated as the primary street.	Complies
Be designed to minimise the incidence of blank and unarticulated elevations.	The proposed building is single storey to reduce impact of bulk and scale and has been designed with articulated architectural features to provide a visually appealing and interesting building.	Complies

Requirement	Proposed	Compliance
Exhibit high levels of architectural articulation through the use of varied architectural planes, effective fenestration, architectural detailing, external materials, and a varied colour palette.	The proposal includes a variety of colours and material such as brick, glass, Colorbond and cladding. The design has taken inspiration from the surrounding residential context, and this is reflected in the single storey design and brick and Colorbond roofing.	Complies
Incorporate a differentiated design approach to the treatment of the ground floor 'vs' upper floor(s), achieved through varied design, use of materials, changes in architectural planes, incorporation of awnings and the like, to enhance pedestrian scale.	The proposal includes articulation of the building with a variety of roofing types, heights and materials to provide greater accessibility to natural sunlight and ventilation.	Complies
Corner Sites		
Development on corner sites should be designed to accentuate the corner and face all streets that flank it. This can be achieved via (but not limited to): *The focussing of the building mass on the corner, using a dominant architectural feature which protrudes above the normal roof line.*	The site is located at the St Michael and Queens Road intersection and the proposed building is shaped like an 'L' providing frontages to both streets. The outdoor play area is orientated towards the intersection corner to provide opportunities for passive surveillance.	Performance solution
The provision of additional detail, colour and textures on the corner portion of the development.	NA	
The inclusion of a dominant entrance feature on the corner.	The pedestrian entry has been designed to be clearly visible from the street through prominent architecture and signage.	Complies
Developments on corner sites should be designed to ensure good visibility for both pedestrians and vehicles	The development includes separate distinctive entries for pedestrians and vehicles to ensure safety of patrons and other pedestrians. The pedestrian entry is clearly visible from the street through prominent architecture and signage.	Complies
Front Facades and Shopfronts		
Facades fronting the street and public domain should incorporate window and door openings which provide passive surveillance.	The proposed building includes direct views to the street from the office, meeting room and activity rooms 5 and 6.	Complies

Requirement	Proposed	Compliance
The pedestrian scale of the development should be enhanced through the use of windows, door openings, awnings, public art, architectural design and detailing at ground level.	A single storey development is proposed with ground floor treatment designed to ensure the safety of the children within the outdoor play areas. A separate pedestrian path is provided through-out the car park for safety and way finding purposes.	Complies
The removal of, or permanent covering of windows and openings within the shop front or front elevation will not be supported.	A shop front is not proposed as part of this application.	Complies
Windows at ground floor level should remain visually permeable at all times.	All windows at ground level are visually permeable except where higher levels of privacy are required such as the laundry and change room. These windows are frosted ensuring sunlight can still penetrate. These windows are located toward the rear of the building and do not impact on the ability of the building to provide passive surveillance of the street. The proposal is consistent with the intent of the policy provisions.	Performance solution
Reflective or heavily tinted glazing at ground floor level will not be supported.	No reflective or heavy tinting is proposed.	Complies
At least 60% of the total length of the ground floor level façade adjacent to a footpath should be transparent.	The eastern setback is adjacent to an existing footpath and all openings orientated towards the footpath are transparent.	Complies
Where they interface with the public domain, security shutters and gates are to be visually permeable. Solid security shutters and gates will not be supported. Roller doors of transparent design and construction will be acceptable provided they are at least 75% visually permeable.	No security shutters are proposed and the entrance to the car park is open, with a security gate located within the basement parking for access to the staff bays, this is not visible from the street.	Complies
Active Uses		
Retail, food and beverage and other commercial uses which promote interaction and deliver vitality within the streetscape, are encouraged to be located on the ground floor level.	The proposed Child Care Premise is located on the ground floor.	Complies

Requirement	Proposed	Compliance
Landscaping		
Where applicable, landscaping should be concentrated within the street setback area to: – *enhance and positively contribute to the streetscape; and* – *soften the appearance of the building; and* – *where relevant, provide a buffer between the development and adjoining residential properties.*	A Landscaping Plan has been prepared and is included at Appendix E. The plan includes retaining trees within the verge areas, landscaping buffer within the front setback area and side boundaries and additional tree at the entrance.	Complies
In addition to traditional at-grade planting, the City will consider landscaping above ground level in the form of: – *Accessible and inaccessible 'green roofs';* – *Well designed and maintained 'green walls';* – *Permanent planters;* – *Window boxes.*	No above ground landscaping is proposed.	Complies
Where applicable, the upgrade and ongoing maintenance of landscaping within the street verge adjoining the development site may be acceptable.	Seven of the existing verge trees are proposed to be retained and maintained.	Complies
Shade trees are to be provided within at-grade car parking areas containing more than six bays. The shade trees are to be provided at a minimum rate of one tree per six bays. The shade trees are to be dispersed evenly throughout the car parking area to provide shade and relief of building bulk.	The parking area is located in a basement and no shade trees are required.	Complies
Where a development site contains mature trees and vegetation, developers are encouraged to consider their retention as part of any redevelopment proposal.	Eight trees are proposed to be retained, including one tree within the proposed outdoor play area.	Complies
There is a presumption in favour of the retention of existing street trees. Approval will not be given for the removal of street trees unless material planning circumstances dictate the removal and where supplementary tree replanting in accordance with Council's Street Tree Policy is the only viable alternative.	Seven existing verge trees are proposed to be retained and maintained.	Complies

Requirement	Proposed	Compliance
Visual Privacy		
All openings to operational rooms where the finished floor level is raised 0.5m or more above natural ground level which overlook any part of an adjoining residential property behind its street setback line, are to be: – *setback, in direct line of sight within the cone of vision, from the boundary of the adjoining property, a minimum of 6m; or* – *provided with permanent vertical screening to a height of 1.6m.*	Openings along the northern boundary a minimum of 2.2 metres above the ground level and are limited to staff facilities, including the kitchen, staff room, and laundry, which are not areas of high activity. The windows are located to reduce direct overlooking of the adjoining property and it is noted that the existing boundary fence between the two properties will continue to act as a visual privacy screen Openings on the western boundary are a minimum of 1.7 metres above ground level and are separated from the activity rooms by a corridor and are positioned at a minimum height of 1.6 metres above floor level, effectively reducing opportunities for overlooking into the adjoining residential property. Given that these rooms are used for support functions rather than child activities, and do not generate the same level of use or interaction as activity rooms or outdoor play areas, any potential impact on visual privacy is expected to be minimal.	Complies

Requirement	Proposed	Compliance
All unenclosed outdoor spaces (balconies, decks, verandahs and the like) where the finished floor level is raised 0.5m or more above natural ground level which overlook any part of an adjoining residential property behind its street setback line are to be: – *setback, in direct line of sight within the cone of vision, from the boundary of the adjoining property, a minimum of 7.5m; or* – *provided with permanent vertical screening to a height of 1.6m.*	The finished floor level of the laundry balcony is approximately 1.1 metres from the ground level, has a solid screen to the northern boundary and is setback three metres from the western boundary with a one metre high balustrade. The drying area is not a habitable space as defined by the R-Codes and is therefore not required to be provided with screening.	Complies
Vehicle Access, Loading and Parking		
Vehicle access should be provided from secondary streets or rights of way where available. Only one access point per street is encouraged.	The site is only accessible from St Michael Terrace, vehicle access is proposed from one of the existing crossover.	Complies
Vehicle access to developments on corner lots should be located the maximum possible distance away from the corner on the minor road or right of way.	The development proposes to use the existing crossover along St Michael Terrace located approximately 40 metres from the intersection.	Complies
All vehicles utilising on-site car parking bays should be able to enter and exit in a forward gear where practicable.	Sufficient visitor parking is provided to avoid the need for a turn-around bay in the basement parking.	Complies
On-site parking should be located behind the building line or within the building where possible. Parking within the front setback area of a development will be discouraged.	The car parking area is located on the basement level and is behind the basement line and completely hidden from view of the street.	Complies
Areas for the loading and unloading of vehicles should be provided on site where the non-residential portion of the development exceeds 500m² Gross Floor Area. The loading area/s are to be of a size and in a location appropriate to the nature of the development.	No loading bay is proposed within the basement parking area.	N/A
Where parking is provided within a basement or undercroft, a minimum headway clearance of 2.85m should be provided where a loading or accessible bay is provided within that level.	No loading bay is proposed within the basement parking area.	N/A

Requirement	Proposed	Compliance
Structures (walls, fencing, services) and vegetation should not exceed 0.6m in height within 1.5m x 1.5m of where the vehicle access way meets the street boundary.	The pedestrian entry stairwell and bin store are both set back 1.5 metres from the vehicle entry.	Complies
Prior to the initial occupation of a development, a Noise Management Plan may be required to detail how noise associated with deliveries is to be managed. Where necessary, limitations on delivery hours may be imposed.	An Environmental Noise Assessment has been prepared for the site and included at Appendix G. The reporting provides recommendations for noise management.	
The provision of bicycle parking facilities and end of trip facilities are encouraged for all developments.	The development provides eight bicycle bays and end-of-trip facilities.	Complies
Disabled parking provided in accordance with the National Construction Code 2012 (as amended).	An ACROD bay is provided and has been design in accordance with the *National Construction Code 2012*.	Complies
Plant		
All air conditioners and other similar servicing plant are to be appropriately located and screened from the street and neighbouring properties.	All air conditioning units and services are proposed to be screened from view and will be incorporated into the design.	Complies
Where air conditioners are to be located on balconies, details of any proposed screening measures are to be provided. This could include measures such as bunting around the unit, or an obscure portion of balustrade.	All air conditioning units and services are proposed to be screened from view and will be incorporated into the design.	Complies
Waste		
All developments should be provided with a bin storage area of sufficient size to accommodate a minimum of one weeks waste and recycled material.	A bin store is located at the front of the building with direct access to the street where the bins will be collected.	Complies
The bin storage area should be screened from view of the street and be located to ensure adverse visual amenity impacts are avoided.	The bin store is screened from the street behind a solid wall to reduce impact on visual amenity.	Complies
Bin storage areas should be located in an easily accessible location for both occupants of the building and for rubbish collection. The design is to include provision for easy cleaning.	The bin store is located in close proximity to the facility to provide easy access. The waste will be collected by the City's waste service.	Complies

Requirement	Proposed	Compliance
Details of the proposed collection point are to be submitted at the time of development approval.	A WMP has been prepared in support of the proposal and is included at Appendix F.	Complies
A rubbish collection point should be nominated which is of sufficient size to contain the number of bins required to service the building, whilst not obstructing parking and pedestrian access, traffic flow and sightlines.	The waste will be collected by the City's waste service from the street to the nominated collection point.	Complies
Prior to the initial occupation of a development, a Waste Management Strategy may be required to detail how waste and the noise associated with waste disposal will be minimised.	The inclusion of a Waste Management Strategy can be required through a condition of approval, if required.	
Site Works		
Where developments are proposed across sloping sites, the principle of equal cut and fill across the site will apply	The subject site has significant sloping ranging from 17.8 to 13.48. The proposed site works incorporate the principle of equal cut and fill however there will be some exporting due to the basement car park. The development proposes to cut approximately 1.4 metres in the southwest corner of the playground and fill the site approximately 1.4 metres in the northwest corner of the playground.	Complies
Objectives		
To promote high quality architectural form to maintain and enhance the visual character of the City.	The proposed development has been designed to a high standard typical of the Hindley and Associates Pty Ltd studio. The building incorporates elements visible from the existing streetscape, including open brick façade.	
To ensure new buildings are designed to be of human scale to facilitate effective movement and interaction between building and street.	The proposed child care centre has been designed with a strong focus on human scale. The building presents a single-storey frontage to the street, maintaining a modest and approachable scale that complements the surrounding built form and residential character.	
To ensure building frontages at the street level assist in the creation of safe built environments through use of internal and external lighting, encouraging visual interest and ensuring passive surveillance.	The development proposes to retain the existing footpath and provides additional landscaping to the streetscape as well as further activation of the frontage as the site has been vacant.	

Requirement	Proposed	Compliance
To ensure that all buildings make a positive contribution to the streetscape, assisting in the maintenance and creation of safe, secure and attractive places.	The proposed child care will positively contribute to the streetscape by providing high levels of visual interest through a variety of materials, colours and textures. The proposal maintains connection with the street through semi-permeable fencing to the child care to provide continued passive surveillance.	

5.4.6 Local Planning Policy 2.2 Outdoor Advertisements and Signage (LPP 2.2)

LPP 2.2 outlines the assessment criteria for outdoor advertisements and signage in the City of Melville. The proposal includes indicative signage locations and sizes on the elevations.

It is acknowledged that the proposed signs will require planning approval because they are on a commercial premises in a residential zone which referred to in clause 1 on LPP 2.2. Once the operator has been confirmed the details of the signage will be presented to the City for approval.

The indicative signage locations have been assessed against the relevant policies of LPP 2.2 in the table below.

Table 10. LPP 2.2 Assessment

Requirement	Proposed	Compliance
Commercial Properties within the Residential zone **Signage displayed on commercial properties located within the Residential zone.**		
Standards		
(a) No more than one sign per street frontage;	Eastern Elevation (Primary Street) – One x 0.8 metres by 0.8m metres (total 0.64m^2) signage zone. – One x three metres by 3.05 metres (total 9.15m^2) address sign adjacent to the crossover. Southern Elevation (Secondary Street) – One x 0.8 metres by 0.8 metres (total 0.64m^2) signage zone.	Variation proposed Complies
(b) Signage shall not exceed a maximum height of 1.8m above ground level;	The address sign proposes a maximum height of 3m.	Variation proposed
(c) Not erected or installed within 1.5 metres of any part of a crossover or street truncation;	The address sign is setback 1.8 metres from the vehicle crossover.	Complies
(d) Individual signage shall not exceed 1m^2 in area; and	Proposed address sign exceeds one m^2.	Variation proposed
(e) No illumination is permitted.	Further details will be provided once signage details have been prepared.	

Requirement	Proposed	Compliance
(f) The sign may only promote the business operating on the site and may not promote any other products or services.	The proposed signage will relate to the child care premise use. No third-party signage is proposed.	Complies
Objectives		
1. To encourage good quality, well considered advertising signage within the City of Melville and the general amenity of the area.	The signage will be constructed from durable, high-quality materials and is designed to be family-friendly and appropriate for a child care setting, supporting a welcoming and well-maintained appearance.	
2. To enable wayfinding and identification of businesses across the City.	The signage will clearly identify the name and function of the centre, aiding in wayfinding for parents, carers, and visitors. It is positioned for easy visibility from the street without dominating the streetscape, thereby serving its functional purpose effectively.	
3. To exempt certain signage from the need for development approval.	Where possible, signage has been designed to comply with exemption criteria outlined in the policy. Only signage that requires development approval is being proposed where necessary, to ensure compliance with the City's framework.	
4. To allow for a performance-based assessment of signage where development approval is required.	Where approval is sought, the signage will be assessed based on its merit, including visual impact, integration with the site, and minimal effect on surrounding properties. The proposal supports the objective of enabling discretion based on good design and site context.	
5. To maintain and enhance levels of visual amenity through the control of advertisement clutter.	The signage is limited in number and size, ensuring it is not excessive or repetitive. It provides clear identification without contributing to advertisement clutter, helping to maintain the visual amenity of the area.	
6. To ensure signage does not present a hazard or obstruction to pedestrians or motorists.	The signage is appropriately located and scaled to ensure it does not obstruct pedestrian pathways or sightlines for vehicles. It is designed to be non-reflective and static, reducing any potential distractions for motorists.	
7. To ensure all signage is designed to be consistent with, and appropriate to, the location and function of the site it serves.	The signage will reflect the purpose and function of the child care centre, with final details to be provided. It will be consistent with the architectural style of the building and the local character of the area.	
8. To protect the significant characteristics of buildings, public reserves, streetscapes	Care has been taken to position the signage in a way that respects the existing streetscape, landscaping, and built form. It does not dominate the façade or obscure architectural features and integrates sensitively with the site's appearance and surroundings.	

5.4.7 Other Considerations

The following table outlines the requirements relevant to the subject site as if it was assessed under the LPS6 Residential R20 density coding due to the location within an existing residential area.

Table 11. R-Code Assessment

<table>
<tr><th>Requirement</th><th>Deemed-to-Comply</th><th>Proposed</th><th>Compliance</th></tr>
<tr><td>Street Setback</td><td>Minimum 6 metres</td><td>Bin store and ramp access setback = 1.5 metres
Main building line = 6.15 metres
The encroaching elements are minor in scale, non-habitable, and designed to integrate with the overall built form without contributing to building bulk. The bin store is architecturally treated and fully enclosed to avoid odour or visual amenity issues, while the staircase and ramp provide clear, accessible, and safe pedestrian entry, supporting universal access and enhancing the functionality of the facility.
Given that the primary built form respects the required 6.0 metre setback and that the reduced setback applies only to incidental and essential access structures, the proposal is considered to meet the performance criteria</td><td>Variation proposed
Complies</td></tr>
<tr><td>Secondary Street</td><td>Minimum 1.5 metres</td><td>Play equipment store = four metres</td><td>Complies</td></tr>
<tr><td>Lot Boundary Setback</td><td>
<table>
<tr><th>SIDE (WEST) BOUNDARY</th><th>Length</th><th>Height</th><th>Major Opening</th><th>Required Setback</th><th>Provided</th><th>Compliant</th></tr>
<tr><td>Playroom to cot room 1</td><td>20.8m</td><td>3.5</td><td>No</td><td>1.5m</td><td>1.5m</td><td>Yes</td></tr>
<tr><td>Corridor to Laundry</td><td>22.8m</td><td>4.6m-5.0m</td><td>No</td><td>2.3</td><td>3m</td><td>Yes</td></tr>
<tr><th>SIDE (NORTH) BOUNDARY</th><th>Length</th><th>Height</th><th>Major Opening</th><th>Required Setback</th><th>Provided</th><th>Compliant</th></tr>
<tr><td>Laundry to kitchen</td><td>22m</td><td>5.8m</td><td>No</td><td>2.8m</td><td>4.1m</td><td>Yes</td></tr>
<tr><td>Corridor to storage/ utilities</td><td>9m</td><td>5.8m</td><td>No</td><td>1.2m</td><td>8m</td><td>Yes</td></tr>
</table>
The reduced setback to the northern elevation is not expected to adversely impact the amenity of the adjoining residential property. The affected rooms are staff facilities, including the kitchen and staff room, which are low-occupancy, non-habitable spaces used intermittently throughout the day and not associated with high levels of activity, noise, or overlooking. Additionally, the building design incorporates appropriate boundary treatments, including fencing and landscaping, to further buffer the adjoining property.</td><td>Variation proposed</td></tr>
</table>

Requirement	Deemed-to-Comply	Proposed	Compliance
Open Space	*50%*	Approx. 1,260m² of open space (60%)	Complies
Building Height (category B)	*Maximum wall height = 7 metres*	Northern elevation:	
	Maximum total building height:	5.8 metres	Complies
	– *Gable, skillion and concealed roof = 8 metres*	6 metres	Complies
	– *Hipped and pitched roof = 10 metres*	9.8 metres	Complies
Street Walls and Fences	*C4.1 Front fences within the primary street setback area that are visually permeable above 1.2m of natural ground level, measured from the primary street side of the front fence (refer Figure 12).* *C4.2 Solid pillars that form part of front fences not more than 1.8m above natural ground level provided the horizontal dimension of the pillars is not greater than 400mm by 400mm and pillars are separated by visually permeable fencing in line with C4.1 (refer Figure 12).*	Northern boundary: 1.8 metre Colorbond fence Western boundary: Two metre Colorbond fence Primary Street: 2.1 metre high masonry fence is proposed on a retaining wall reaching a maximum of 3.7 metres total from finished ground level. Secondary Street: 2.1 metre high masonry fence is proposed on a retaining wall reaching a maximum of 2.5 metres total from finished ground level. The increased height is driven by the site's topography and the need to create levelled outdoor play areas and safe, accessible entry points for the child care centre. Despite the additional height, the fences are well-integrated into the design through high-quality materials and landscaping that softens their visual impact. The fencing ensures the safety and security of children without compromising streetscape amenity or passive surveillance, as key entry points remain visible and the main building is clearly identifiable from the street.	Complies Variation proposed

6. Conclusion

In addition to the assessment and justification provided in the planning assessment provided at Sections 4 and 5, the principles of orderly and proper planning require that new development is a logical and efficient extension of existing development and is consistent with the planning vision and strategic direction for the locality.

The key points regarding the proposal are as follows:

- The development is strategically located in close proximity to a local primary school, other community services, local reserve and bus stops with frequent services.
- The proposal will provide an important and in-demand community service in high-quality care and educational service for children in the local area.
- The development has been designed in conjunction with the landscaping of the surrounding area, retaining as many mature trees as possible to ensure that it will present well to the streetscape with mature landscaping.
- Technical reports have been provided in support of the development and identify that the facility will not have an adverse impact on the existing traffic patterns of the suburb and also that the parking provided on site is appropriate for the size of the facility proposed.
- The development has been designed to consider recommendations and outcomes from the technical acoustic report to ensure that the proposal does not detrimentally impact upon the surrounding residential dwellings.

Given the above, the proposed development is consistent with the principles of orderly and proper planning and should be supported on its planning merit.

Appendix A – Certificates of Title

Transfer 7250/1949 16808/49
Application 37529/50
From Volume 1081 Folio 820
12156/57
8449/62

ORIGINAL

INDEXED

REGISTER BOOK.
Vol. 1118 Fol. 183

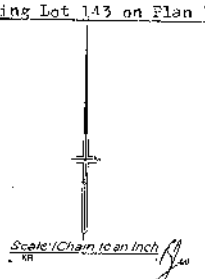
WESTERN AUSTRALIA.

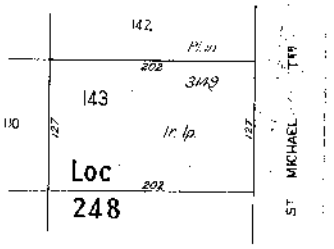
Certificate of Title

CT 1118 0183 F

under "The Transfer of Land Act, 1893" (56 Vic., 14, Sch. 5).

Eric Lionel Brooker of 9 Lyons Street, Cottesloe, Engineer, is now the proprietor of an estate in fee simple subject to the easements and encumbrances notified hereunder in all that piece of land delineated and coloured green on the map hereon containing one rood and one perch or thereabouts, being portion of Canning Location 248 and being Lot 143 on Plan 3149.





Dated the twenty-third day of May One thousand nine hundred and forty-nine.

Asst Registrar of Titles.

1 Transfer 2339/1957 to Olive Nora Brooker of 34 St Michaels Terrace Mount Pleasant, Married Woman. Registered 1st April 1957 at 10.46 o'c.

ASSISTANT REGISTRAR OF TITLES.

Transfer 20993/85 to Harry William Brooker, Retired Drapery Manager and Olive Nora Brooker, his wife; both of 34 St. Michaels Terrace, Mount Pleasant, as joint tenants. Registered 30th March 1985 at 12.24 o'c.

L.J. Symes.
ASSISTANT REGISTRAR OF TITLES

Application B6779. On 3-4-1975 Harry William Brooker died and thereupon Olive Nora Brooker became the sole proprietor.

13th August 1975.

Application C372361. The registered proprietor is the Public Trustee as executor of the Will of Olive Nora Brooker who died on 31.1.1982 (Probate granted 11.3.1982).

11th June 1982.

Transfer C372362 to Anita Joan Barnes of 1/3 Dodd Street, Wembley, Divorcee and Eric Lionel Brooker of 433/E Third Street, Kingsdale, Illinois, United States of America, Managing Director as tenants in common in equal shares. Registered 11th June 1982 at 11.22 o'c.

Transfer C784061 to Elfie Anna Koch, Retired Secretary, Doris Marilyn Nelson, and Robert Alan Nelson, Teachers, all of 36 Saint Michael Terrace, Mount Pleasant. Registered 1st June, 1984 at 12.08 o'c.

For encumbrances and other matters affecting the land see back.

EASEMENTS AND ENCUMBRANCES REFERRED TO.

SPECIAL BUILDING CONDITIONS AND RESTRICTIVE COVENANTS CONTAINED IN TRANSFER 7250/1949 TO Eric Lionell Brecker REGISTERED VOL 1081 FOL 524

Asst REGISTRAR OF TITLES.

CT 1118 0183 B

CERTIFICATE OF TITLE.

Vol. *Fol.*

WESTERN AUSTRALIA

TITLE NUMBER	
Volume	Folio
1152	**632**

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.

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 144 ON PLAN 3149

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

STOCK ROAD LAND PTY LTD OF 11 FIRST AVENUE APPLECROSS WA 6153

(T P611098) REGISTERED 3/7/2023

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. P624400 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD REGISTERED 14/7/2023.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. 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:	1152-632 (144/P3149)
PREVIOUS TITLE:	1081-820
PROPERTY STREET ADDRESS:	36 ST MICHAEL TCE, MOUNT PLEASANT.
LOCAL GOVERNMENT AUTHORITY:	CITY OF MELVILLE

NOTE 1: Q425901 DEPOSITED PLAN 427482 LODGED

WESTERN AUSTRALIA

TITLE NUMBER	
Volume	Folio
1118	**183**

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.

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 143 ON PLAN 3149

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

STOCK ROAD LAND PTY LTD OF 11 FIRST AVENUE APPLECROSS WA 6153

(T P210936) REGISTERED 8/7/2022

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. T7250/1949 RESTRICTIVE COVENANT BURDEN REGISTERED 1/1/1949.
2. P590041 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD REGISTERED 16/6/2023.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. 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:	1118-183 (143/P3149)
PREVIOUS TITLE:	1081-820
PROPERTY STREET ADDRESS:	34 ST MICHAEL TCE, MOUNT PLEASANT.
LOCAL GOVERNMENT AUTHORITY:	CITY OF MELVILLE

NOTE 1: Q425901 DEPOSITED PLAN 427482 LODGED

Transfer 18791/1952 (22141)
Application
From Volume 1081 Folio 820
3835/53
7379/53
1953/54
17563/56
18607/57

ORIGINAL

WESTERN AUSTRALIA.

INDEXED.

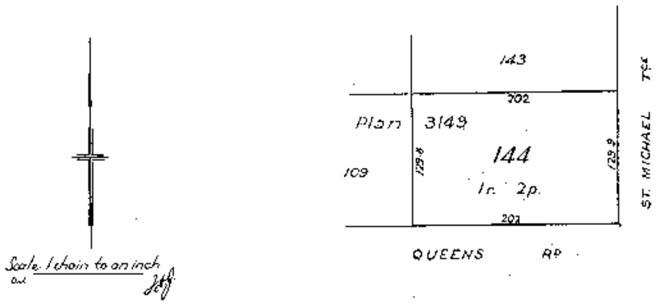
REGISTER BOOK.
Vol. 1152 Fol. No. 632

CT 1152 0632 F

Certificate of Title

under "The Transfer of Land Act, 1893" (56 Vic., 14, Sch. 5).

Johannes Pruntel, Carpenter and Hendrika Sophia Pruntel, his wife, both of Queens Road, Mount Pleasant, are now the proprietors as joint tenants of an estate in fee simple subject to the easements and encumbrances notified hereunder in all that piece of land delineated and coloured green on the map hereon containing one rood and two perches or thereabouts, being portion of Canning Location 248 and being Lot 144 on plan 3149.



Dated the first day of December One thousand nine hundred and fifty-two

Registrar of Titles.

Transfer 8372/1956 to Kenneth Arnold Parker, Miner, and Edythe Myra Parker his wife, both of 94 Johnston Street Collie, as joint tenants. Registered 27th June 1956 at 9.51 o'c.

Transfer H403660 the interest of Kenneth Arnold Parker is transferred to Edythe Myra Parker of 30 St. Michael's Terrace Mt. Pleasant Married Woman who is now the sole proprietor. Registered 18th May 1971 at 9.14 o'c.

Transfer A915301 to Robert Alan Nelson, Teacher and Doris Marilyn Nelson, Teacher, both of 15 Andrass Street, Applecross as joint tenants Registered 21st January 1975 at 9.50 o'c.

For encumbrances and other matters affecting the land see back.

EASEMENTS AND ENCUMBRANCES REFERRED TO

MORTGAGE 1122/1953 Johannes Pruntel and Hendrika Sophia Pruntel to Beilaqua ... Pty. Limited to secure £200. DISCHARGED
Registered 23rd December 1952 at 3.45 o'c. Registrar of Titles.
W

DISCHARGE 1532/1953 of Mortgage 1122/1953
Registered 19th February 1953 at 2.30 o'c. Assistant Registrar of Titles.

MORTGAGE 1863/1953 Johannes Pruntel and Hendrika Sophia Pruntel to Richard Lawley Triscott, Engineer of 9 Lyric Avenue, South Perth to secure £1000.
Registered 19th February 1953 at 2.30 o'c. Assistant Registrar of Titles.

MORTGAGE 18436/1953 Johannes Pruntel and Hendrika Sophia Pruntel to James Leonard Russell, Orchardist, of care of Bevilaqua & Williams Pty. Limited of Occidental House 511 St. Georges Terrace Perth to secure £500.
Registered 21st December 1953 at 2.45 o'c. Assistant Registrar of Titles.

Discharge 4626/1956 of Mortgage 1863/1953. Registered 27th June 1956 at 9.51 o'c.

Discharge 4627/1956 of Mortgage 18436/1953. Registered 27th June 1956 at 9.51 o'c.

Instrument stamped £3.12.6
Mortgage 5867/1956 Kenneth Arnold Parker and Edythe Myra Parker to Charles Bennett Parker of Lucirading, Farmer. Registered 27th June 1956 at 9.51 o'c.

Discharge 4926/1957 of Mortgage 5867/1956 Registered 31st May 1957 at 9.10 o'c.
ASSISTANT REGISTRAR OF TITLES.

Mortgage 6173/1957. Kenneth Arnold Parker and Edythe Myra Parker to Director of War Service Homes to secure £2750. Registered 31st May 1957 at 9.10 o'c. DISCHARGED
ASSISTANT REGISTRAR OF TITLES.

Discharge A915300 of Mortgage 6173/1957 Registered 21st January 1975 at 9.50 o'c.

Mortgage A915302 to The National Bank Savings Bank Limited Registered 21st January 1975 at 9.50 o'c. DISCHARGED

Discharge C896139 of Mortgage A915302. Registered 12th November, 1984 at 3.07 o'c.

CT 1152 0632 B

CERTIFICATE OF TITLE

Vol. 1152 Fol.

Appendix B – Development Plans

CAR PARKING:

USE	VALUE	CALC	REQUIRED
CHILDCARE	29 EMPLOYEES (est)	0.5/STAFF	14.5 (est)
	113 CHILDREN	1/10 CHILDREN	11.3
TOTAL REQUIRED			**25.8 (est)**
TOTAL PROVIDED			**25**

NOTES

THIS DRAWING IS CONCEPTUAL ONLY (INCLUDING CHILD PLACEMENT NUMBERS WHICH ARE ESTIMATES ONLY) AND SUBJECT TO THE FOLLOWING:-

1. ANY TITLE ENCUMBRANCES;
2. CONTOUR AND FEATURE SURVEY;
3. LOCATION OF EXISTING SERVICES / EASEMENTS;
4. END USER / OPERATOR REQUIREMENTS;
5. FULL TOWN PLANNING ASSESSMENT;
6. PLANNING APPROVAL;
7. TRAFFIC / TRANSPORT ASSESSMENT;
8. BUSHFIRE RISK ASSESSMENT;
9. ACOUSTIC ASSESSMENT;
10. DETAILED DESIGN DEVELOPMENT;
11. CERTIFICATE OF COMPLIANCE WITH NCC AND RELEVANT AUSTRALIAN STANDARDS;
12. BUILDING PERMIT;
13. CHILDCARE LICENCE.

HINDLEY & ASSOCIATES PTY LTD
BUILDING DESIGNERS

166 STIRLING HIGHWAY
NEDLANDS WA 6009

PO BOX 199
NEDLANDS WA 6909

PHONE - 9386 6699
FAX - 9386 6700
admin@hindley.com.au

DEVELOPMENT APPLICATION

HINDLEY & ASSOCIATES P/L
AS TRUSTEE FOR
HINDLEY TRUST
ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

NO:	DATE:	REVISION:	DRAWN:	CHECK:
A	15.05.25	ISSUED FOR DA	JJR	SDS
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A1 SHEET

PROPOSED SITE PLAN

SCALE 1:200

N

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date - 28.11.24
Design - SDS
Drawn - SDS
Checked - SDS
Scale - 1:200
Job No. - 0847
Dwg - DA01
Rev - A

NOTES:

1. *DESIGN LEVELS ARE INDICATIVE ONLY. FINAL LEVELS AND TO BE DESIGNED BY A CIVIL ENGINEER AS PART OF THE BUILDING PERMIT APPLICATION.
2. SURVEY INFORMATION PROVIDED BY TUSCOM SUBDIVISION CONSULTANTS PTY LTD. REFER TO FEATURE SURVEY DATED 09/06/2023 FOR IDENTIFICATION OF FEATURES AND DETAILS OF DATUM.
3. SEWER LOCATION IS PLOTTED FROM WATER CORPORATION PLANS AND IS TO BE CONSIDERED APPROXIMATE ONLY. ACCURATE LOCATION OF SEWER TO BE VERIFIED PRIOR TO CONSTRUCTION.
4. SURFACE FEATURES AND LEVELS HAVE BEEN SURVEYED TO MEET THE REQUESTED SCOPE OF WORKS ACCURACY. THE SURFACE MAY BE CONTOURED TO DEPICT TOPOGRAPHY OR DEFINED ONLY BY SPOT HEIGHTS, FOR CLARITY. ON HARD COPY SOME LEVEL INFORMATION IS NOT SHOWN, REFER TO 3D DIGITAL FILE. ABOVE GROUND INDICATORS (MARKERS) OF UNDERGROUND SERVICES ARE LOCATED WHERE VISIBLE. THIRD PARTIES UTILISING THIS INFORMATION SHOULD CONFIRM THE CAPTURE ACCURACIES MEET REQUIREMENTS PRIOR TO USE.
5. PRIOR TO ANY CONSTRUCTION, EXCAVATION OR DEMOLITION THE RELEVANT SERVICE AUTHORITIES SHOULD BE CONTACTED TO CONFIRM LOCATION OF ALL UNDERGROUND AND NON-VISIBLE SERVICES. THE CONTRACTOR IS TO CARRY OUT A GROUND SCAN TO LOCATE ANY EXISTING SERVICES WITHIN THE SITE AND VERGE AREAS PRIOR TO WORKS.
6. THE DEPICTED PREGALCULATED BOUNDARIES SHALL BE TREATED AS PROPOSED ONLY AND MAY BE SUBJECT TO ALTERATIONS IN DIMENSIONS OR AREAS PRIOR TO DEPOSITED PLAN LODGEMENT AT LANDGATE. THE DEPICTED BOUNDARY LOCATIONS ARE A GRAPHICAL REPRESENTATION ONLY, THEREFORE THEIR POSITION IS NOT GUARANTEED BY MNG UNLESS STATED OTHERWISE. RE-ESTABLISHMENT OF LOT BOUNDARIES BY A LICENSED SURVEYOR IS RECOMMENDED FOR ANY WORKS ON OR ABOUT A BOUNDARY.
7. REFER TO CERTIFICATE OF TITLE FOR ENCUMBRANCES.

LEGEND:

— — — ITEMS TO BE REMOVED / DEMOLISHED SHOWN IN RED.

290

S/STOREY
BRICK&TILE

HINDLEY & ASSOCIATES PTY LTD
BUILDING DESIGNERS

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DEVELOPMENT APPLICATION

HINDLEY & ASSOCIATES P/L
AS TRUSTEE FOR
HINDLEY TRUST
ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

NO:	DATE:	REVISION:	DRAWN:	CHECK:
A	15.05.25	ISSUED FOR DA	JJR	SDS

A1 SHEET

SURVEY OVERLAY & DEMO PLAN

SCALE 1:100

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date	-	28.11.24
Design	-	SDS
Drawn	-	SDS
Checked	-	SDS
Scale	-	1:100
Job No.	-	0847
Dwg -		DA02
Rev -		A

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HINDLEY & ASSOCIATES P/L
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HINDLEY TRUST
ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

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-				

A1 SHEET

PROPOSED BASEMENT FLOOR PLAN

SCALE 1:100

N

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date - 28.11.24
Design - SDS
Drawn - SDS
Checked - SDS
Scale - 1:100
Job No. - 0847
Dwg - DA03
Rev - A

HINDLEY & ASSOCIATES
PTY LTD
BUILDING DESIGNERS

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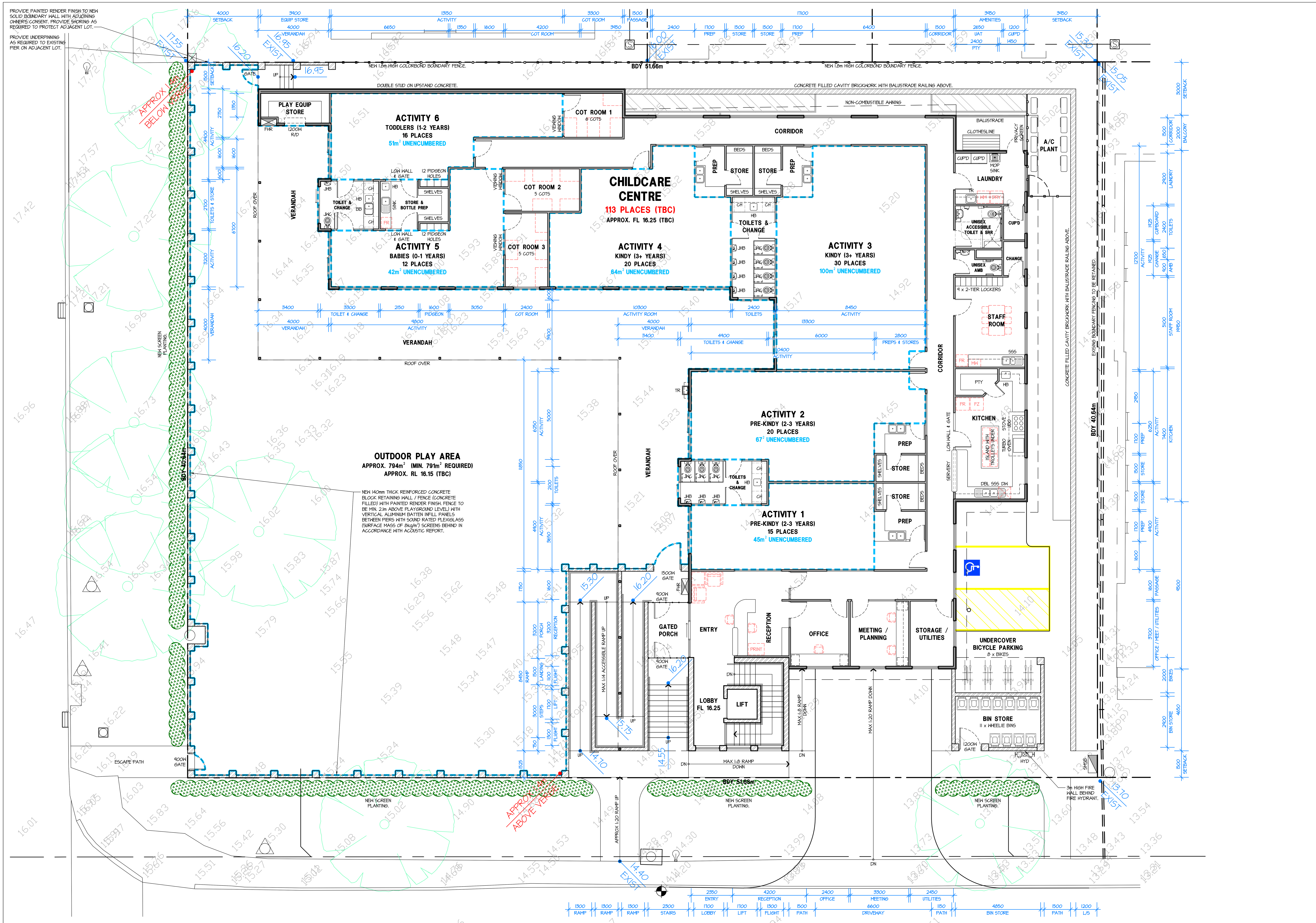
DEVELOPMENT APPLICATION



PROVIDE PAINTED RENDER FINISH TO NEW SOLID BOUNDARY WALL WITH ADJOINING OWNER'S CONSENT. PROVIDE SHORING AS REQUIRED TO PROTECT ADJACENT LOT.
PROVIDE UNDERPINNING AS REQUIRED TO EXISTING PIER ON ADJACENT LOT.
NEW 1.8m HIGH COLORBOND BOUNDARY FENCE.
DOUBLE STUD ON UPSTAND CONCRETE.
CONCRETE FILLED CAVITY BRICKWORK WITH BALUSTRADE RAILING ABOVE.
NON-COMBUSTIBLE AWNING
PLAY EQUIP STORE
ACTIVITY 6
TODDLERS (1-2 YEARS)
16 PLACES
51m² UNENCUMBERED
COT ROOM 1
6 COTS
CORRIDOR
CHILDCARE CENTRE
113 PLACES (TBC)
APPROX. FL 16.25 (TBC)
COT ROOM 2
5 COTS
COT ROOM 3
5 COTS
ACTIVITY 5
BABIES (0-1 YEARS)
12 PLACES
42m² UNENCUMBERED
ACTIVITY 4
KINDY (3+ YEARS)
20 PLACES
64m² UNENCUMBERED
ACTIVITY 3
KINDY (3+ YEARS)
30 PLACES
100m² UNENCUMBERED
TOILETS & CHANGE
PREP
STORE
BEDS
SHELVES
VERANDAH
ROOF OVER
A/C PLANT
LAUNDRY
UNISEX ACCESSIBLE TOILET & SHR
UNISEX AMB
CHANGE
STAFF ROOM
KITCHEN
OUTDOOR PLAY AREA
APPROX. 794m² (MIN. 791m² REQUIRED)
APPROX. RL 16.15 (TBC)
NEW 140mm THICK REINFORCED CONCRETE BLOCK RETAINING WALL / FENCE (CONCRETE FILLED) WITH PAINTED RENDER FINISH. FENCE TO BE MIN. 2.1m ABOVE PLAYGROUND LEVEL) WITH VERTICAL ALUMINIUM BATTEN INFILL PANELS BETWEEN PIERS WITH SOUND RATED PLEXIGLASS (SURFACE MASS OF 8kg/m²) SCREENS BEHIND IN ACCORDANCE WITH ACOUSTIC REPORT.
ACTIVITY 2
PRE-KINDY (2-3 YEARS)
20 PLACES
67m² UNENCUMBERED
ACTIVITY 1
PRE-KINDY (2-3 YEARS)
15 PLACES
45m² UNENCUMBERED
GATED PORCH
ENTRY
RECEPTION
OFFICE
MEETING / PLANNING
STORAGE / UTILITIES
UNDERCOVER BICYCLE PARKING
8 x BIKES
LOBBY
FL 16.25
LIFT
BIN STORE
11 x WHEELIE BINS
MAX 1:14 ACCESSIBLE RAMP UP
MAX 1:8 RAMP DOWN
MAX 1:20 RAMP DOWN
APPROX 1:20 RAMP UP
ESCAPE PATH
NEW SCREEN PLANTING.
APPROX LEVEL BELOW VERGE
APPROX LEVEL ABOVE VERGE
BDY 51.66m
BDY 40.64m
3m HIGH FIRE WALL BEHIND FIRE HYDRANT.
EXISTING BOUNDARY FENCING TO BE RETAINED.

IIA
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HINDLEY & ASSOCIATES P/L AS TRUSTEE FOR HINDLEY TRUST ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

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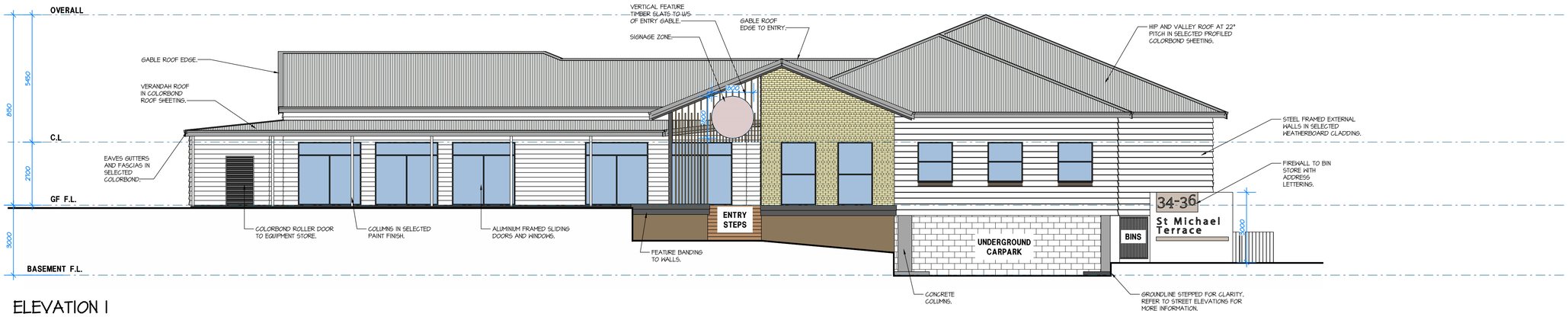
A1 SHEET

PROPOSED GROUND FLOOR PLAN

SCALE 1:100

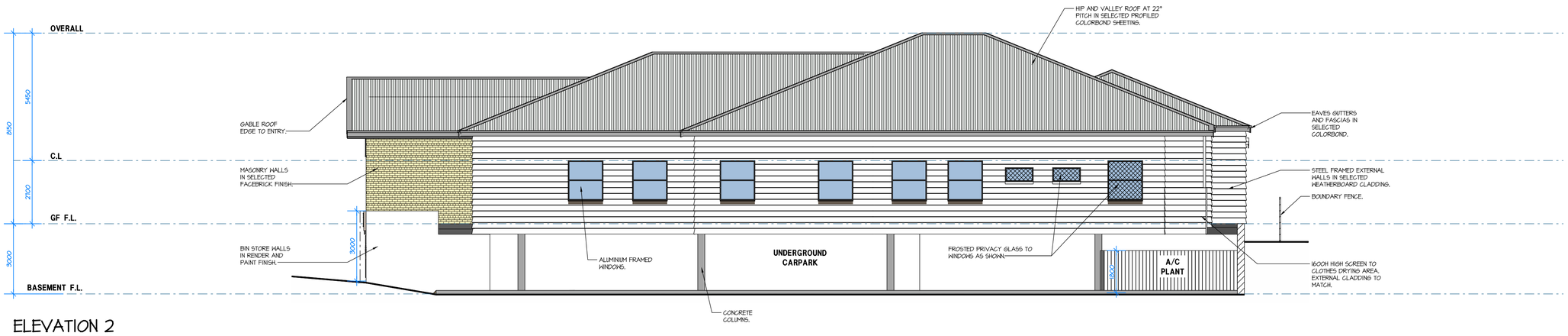
PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date	28.11.24
Design	SDS
Drawn	SDS
Checked	SDS
Scale	1:100
Job No.	0847
Dwg	DA04
Rev	A



ELEVATION 1

SCALE 1:100



ELEVATION 2

SCALE 1:100

COLOUR SCHEDULE:

- EXTERNAL WEATHERBOARD CLADDING IN DULUX VIVID WHITE PAINT FINISH.
- CUSTOM ORB ROOF SHEETING IN COLORBOND SURFMIST.
- EXTERNAL WALLS IN DULUX VIVID WHITE PAINT FINISH.
- COLORBOND BASALT (TO ENTRY BANDING TRIMS).
- COLORBOND JASPER (TO ENTRY FEATURE WALLS).
- SLECTED FACEBRICK FINISH IN FLORENTINE LIMESTONE
- GLAZING WITH ALUMINIUM FRAMES IN DULUX BLACK POWDERCOAT FINISH.

EXTERNAL FENCE:

- COLORBOND PAPERBARK PAINT FINISH.
- PLAY AREA WITH VERTICAL SLAT INFILL TO MASONRY FENCE. PROVIDE PERSPEX BACKING IN ACCORDANCE WITH ACOUSTIC REPORT (COLORBOND BASALT).
- EXTERNAL SMARTASCREEN PROFILED FENCE IN SURFMIST FINISH.

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BUILDING ELEVATIONS

SCALE 1:100

PROPOSED CHILDCARE CENTRE
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ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

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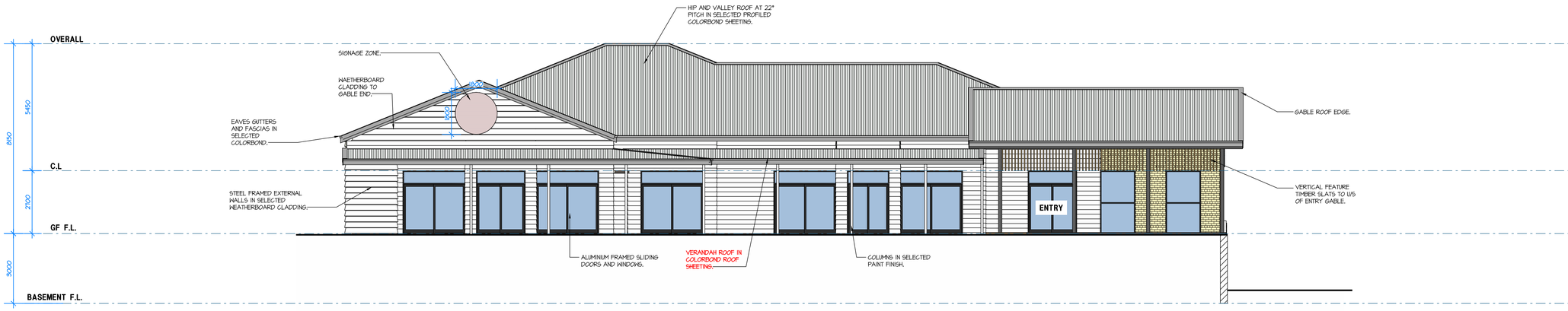
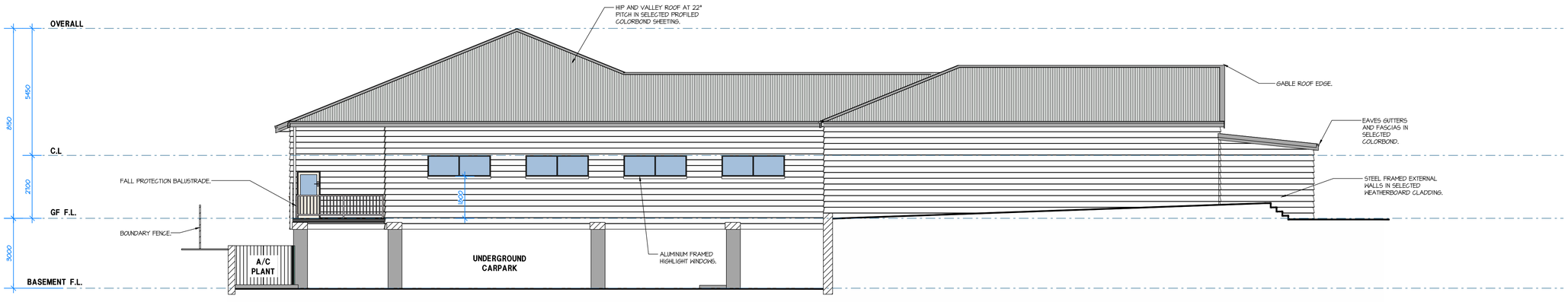
Scale	-	1:100
Job No.	-	0847
Dwg	-	DA05
Rev	-	A



ELEVATION 3

SCALE 1:100



ELEVATION 4

SCALE 1:100

COLOUR SCHEDULE:

- EXTERNAL WEATHERBOARD CLADDING IN DULUX VIVID WHITE PAINT FINISH.
- CUSTOM ORB ROOF SHEETING IN COLORBOND SURFMIST.
- EXTERNAL WALLS IN DULUX VIVID WHITE PAINT FINISH.
- COLORBOND BASALT (TO ENTRY BANDING TRIMS).
- COLORBOND JASPER (TO ENTRY FEATURE WALLS).
- SLECTED FACEBRICK FINISH IN FLORENTINE LIMESTONE
- GLAZING WITH ALUMINIUM FRAMES IN DULUX BLACK POWDERCOAT FINISH.

EXTERNAL FENCE:

- COLORBOND PAPERBARK PAINT FINISH.
- PLAY AREA WITH VERTICAL SLAT INFILL TO MASONRY FENCE PROVIDE PERSPEX BACKING IN ACCORDANCE WITH ACOUSTIC REPORT (COLORBOND BASALT).
- EXTERNAL SMARTASCREEN PROFILED FENCE IN SURFMIST FINISH.

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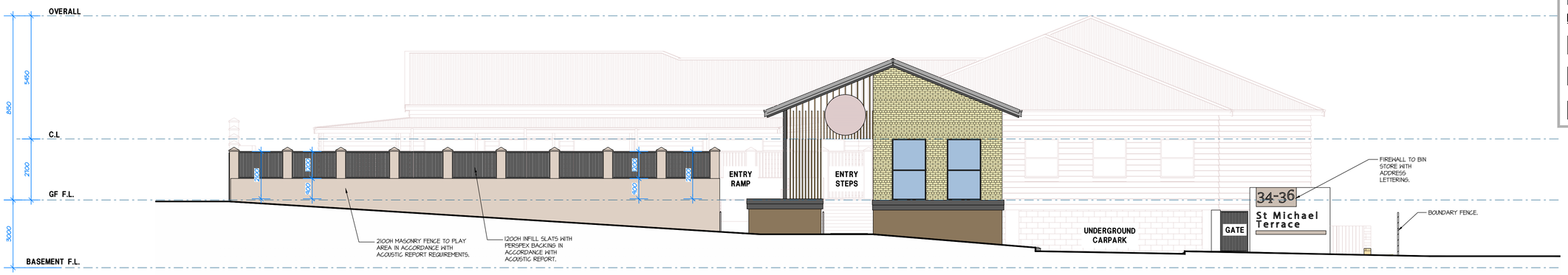
A1 SHEET

BUILDING ELEVATIONS

SCALE 1:100

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date	-	13.05.25
Design	-	JJR
Drawn	-	JJR
Checked	-	SDS
Scale	-	1:100
Job No.	-	0847
Dwg	-	DA06
Rev	-	A



ELEVATION 5

SCALE 1:100

COLOUR SCHEDULE:

- EXTERNAL WEATHERBOARD CLADDING IN DULUX VIVID WHITE PAINT FINISH.
- CUSTOM ORB ROOF SHEETING IN COLORBOND SURFMIST.
- EXTERNAL WALLS IN DULUX VIVID WHITE PAINT FINISH.
- COLORBOND BASALT (TO ENTRY BANDING TRIMS).
- COLORBOND JASPER (TO ENTRY FEATURE WALLS).
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- GLAZING WITH ALUMINIUM FRAMES IN DULUX BLACK POWDERCOAT FINISH.

EXTERNAL FENCE:

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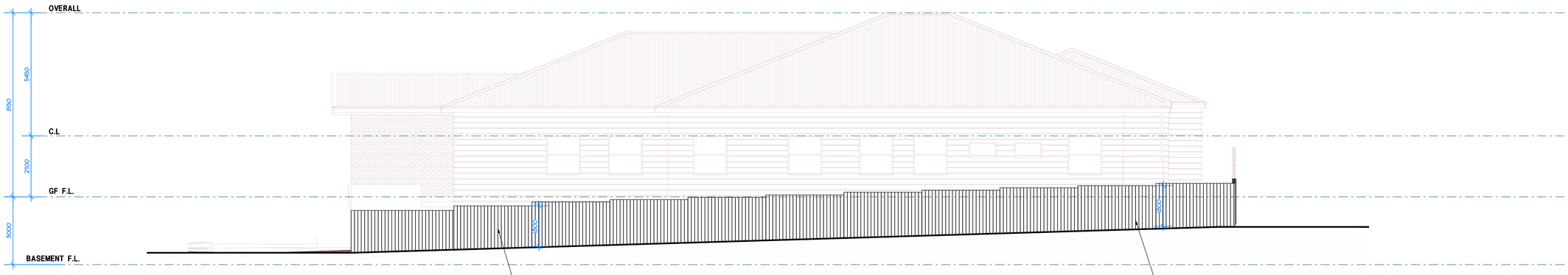
- PLAY AREA WITH VERTICAL SLAT INFILL TO MASONRY FENCE PROVIDE PERSPEX BACKING IN ACCORDANCE WITH ACOUSTIC REPORT (COLORBOND BASALT).
- EXTERNAL SMARTASCREEN PROFILED FENCE IN SURFMIST FINISH.



ELEVATION 6

SCALE 1:100

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DEVELOPMENT APPLICATION

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HINDLEY TRUST
ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

NO:	DATE:	REVISION:	DRAWN:	CHECK:
A	15.05.25	ISSUED FOR DA	JJR	SDS

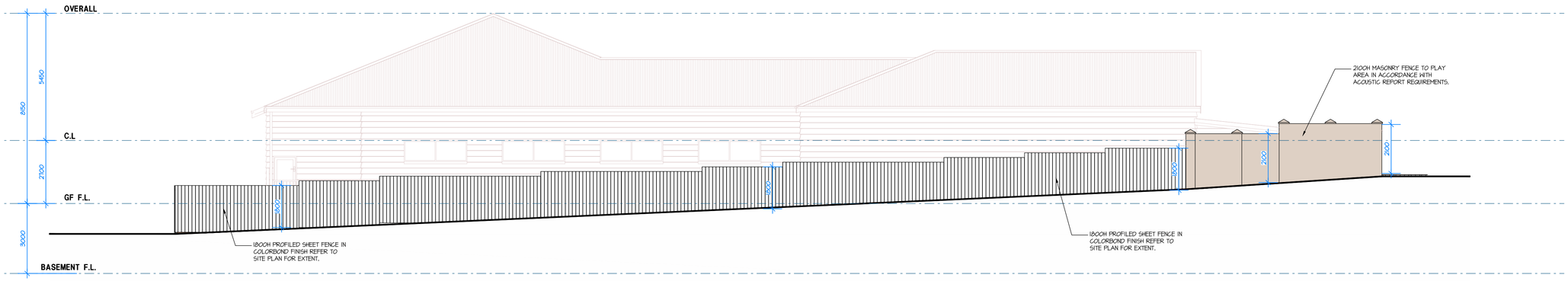
A1 SHEET

BOUNDARY ELEVATIONS

SCALE 1:100

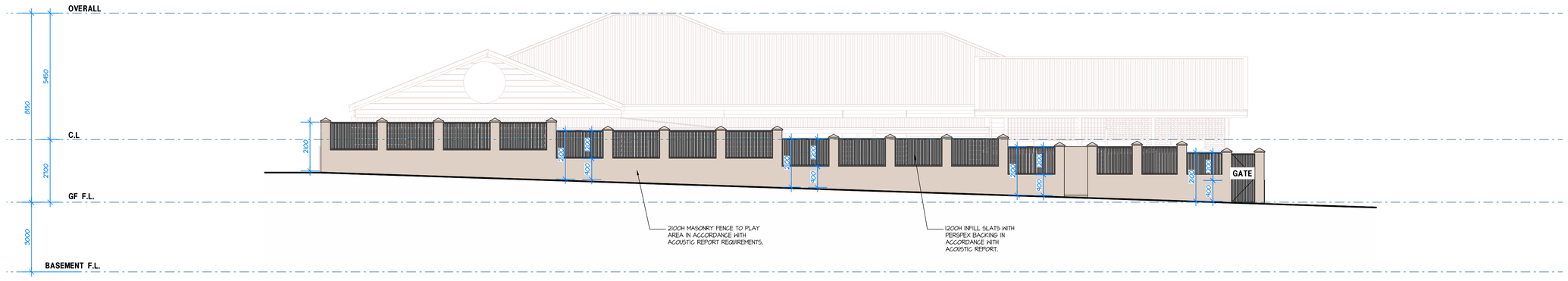
PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date	-	13.05.25
Design	-	JJR
Drawn	-	JJR
Checked	-	SDS
Scale	-	1:100
Job No.	-	0847
Dwg	-	DA07
Rev	-	A



ELEVATION 7

SCALE 1:100



ELEVATION 8

SCALE 1:100

COLOUR SCHEDULE:

- EXTERNAL WEATHERBOARD CLADDING IN DULUX VIVID WHITE PAINT FINISH.
- CUSTOM ORB ROOF SHEETING IN COLORBOND SURFMIST.
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EXTERNAL FENCE:

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- EXTERNAL SMARTASCREEN PROFILED FENCE IN SURFMIST FINISH.

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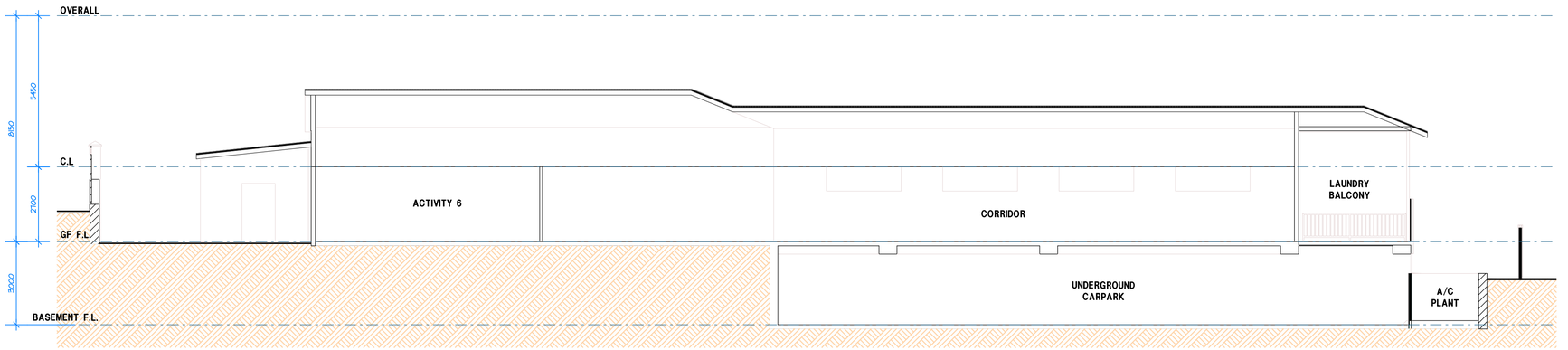
A1 SHEET

BOUNDARY ELEVATIONS

SCALE 1:100

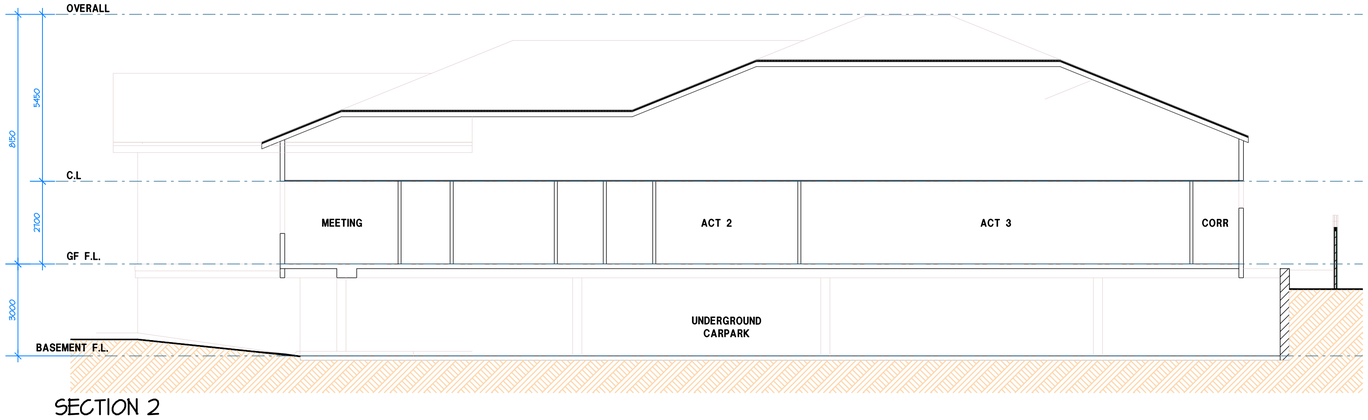
PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date	-	13.05.25
Design	-	JJR
Drawn	-	JJR
Checked	-	SDS
Scale	-	1:100
Job No.	-	0847
Dwg	-	DA08
Rev	-	A



SECTION 1

SCALE 1:100



SECTION 2

SCALE 1:100

HINDLEY & ASSOCIATES
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A1 SHEET

SECTIONS

SCALE 1:100

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date	-	13.05.25
Design	-	JJR
Drawn	-	JJR
Checked	-	SDS
Scale	-	1:100
Job No.	-	0847
Dwg	-	DA09
Rev	-	A

IMAGE 1

IMAGE 2

IMAGE 3

IMAGE 4

HINDLEY & ASSOCIATES P/L
AS TRUSTEE FOR
HINDLEY TRUST
ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

NO:	DATE:	REVISION:	DRAWN:	CHECK:
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A1 SHEET

PERSPECTIVES

NTS

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
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for STOCK ROAD LAND PTY LTD

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Checked	-	SDS
Scale	-	NTS
Job No.	-	0847
Dwg	-	DA10
Rev	-	A

IMAGE 5

IMAGE 6

IMAGE 7

HINDLEY & ASSOCIATES
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PERSPECTIVES

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Job No.	-	0847
Dwg	-	DA11
Rev	-	A

IMAGE 8

IMAGE 9

IMAGE 10

HINDLEY & ASSOCIATES P/L
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PERSPECTIVES

NTS

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Job No.	-	0847
Dwg	-	DA12
Rev	-	A

Appendix C – Traffic Impact Statement

urbii

Sustainable Transport. Safe Solutions

34-36 St Michael Terrace, Mount Pleasant

Proposed Child Care Centre

TRANSPORT IMPACT STATEMENT

Prepared for:

Carcione Nominees Pty Ltd

June 2025

34-36 St Michael Terrace, Mount Pleasant

Prepared for: Carcione Nominees Pty Ltd
Prepared by: Paul Ghantous
Date: 10 June 2025
Project number: U24.177

Version control

Version No.	Date	Prepared by	Revision description	Issued to
U24.177.r01	21/04/25	Paul Ghantous	DRAFT	Element
U24.177.r01a	10/06/25	Paul Ghantous	FINAL	Element

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1 Introduction

This Transport Impact Statement has been prepared by Urbii on behalf of Carcione Nominees Pty Ltd with regards to the proposed child care centre, located at 34-36 St Michael Terrace, Mount Pleasant.

The subject site is situated on the north-west corner of St Michael Terrace and Queens Road, as shown in Figure 1. The site is presently vacant and is surrounded by a mix of residential, education and commercial land uses. Mount Pleasant Primary School is located across the road to the south of the site and some shops and medical services are located nearby to the east.

It is proposed to develop the site into a child care centre catering for up to 113 children and 29 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.

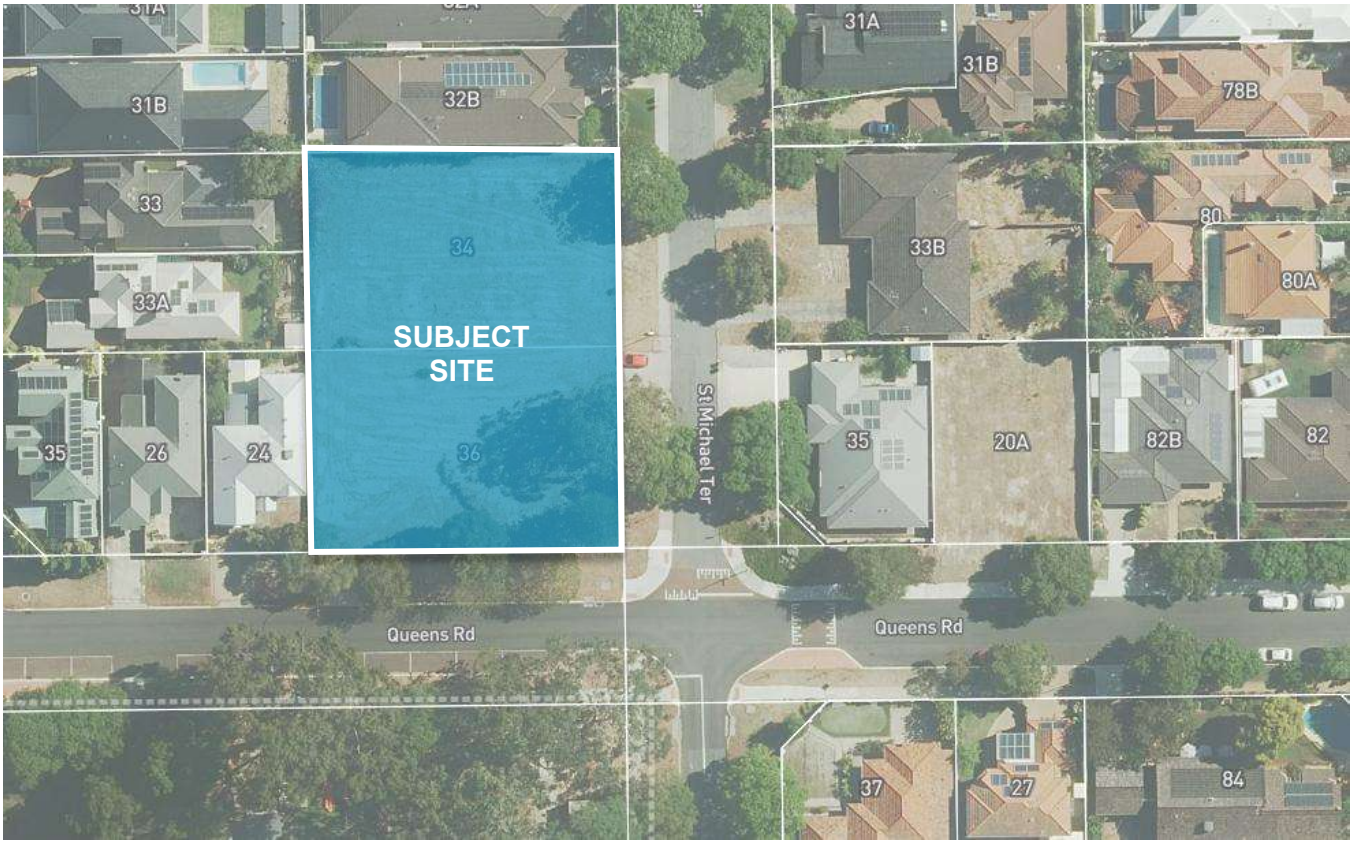


Figure 1: Subject site location

2 Proposed development

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

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

Vehicle access to the site is proposed via one crossover on St Michael Terrace. People walking and cycling will access the development from the external path network abutting the site.

Bins will be wheeled out from the bin store for kerbside waste collection on designated days.

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

3 Vehicle access and parking

3.1 Existing vehicle access

As detailed in Figure 2, existing vehicle access to the site is via two crossovers on St Michael Terrace and one crossover on Queens Road.

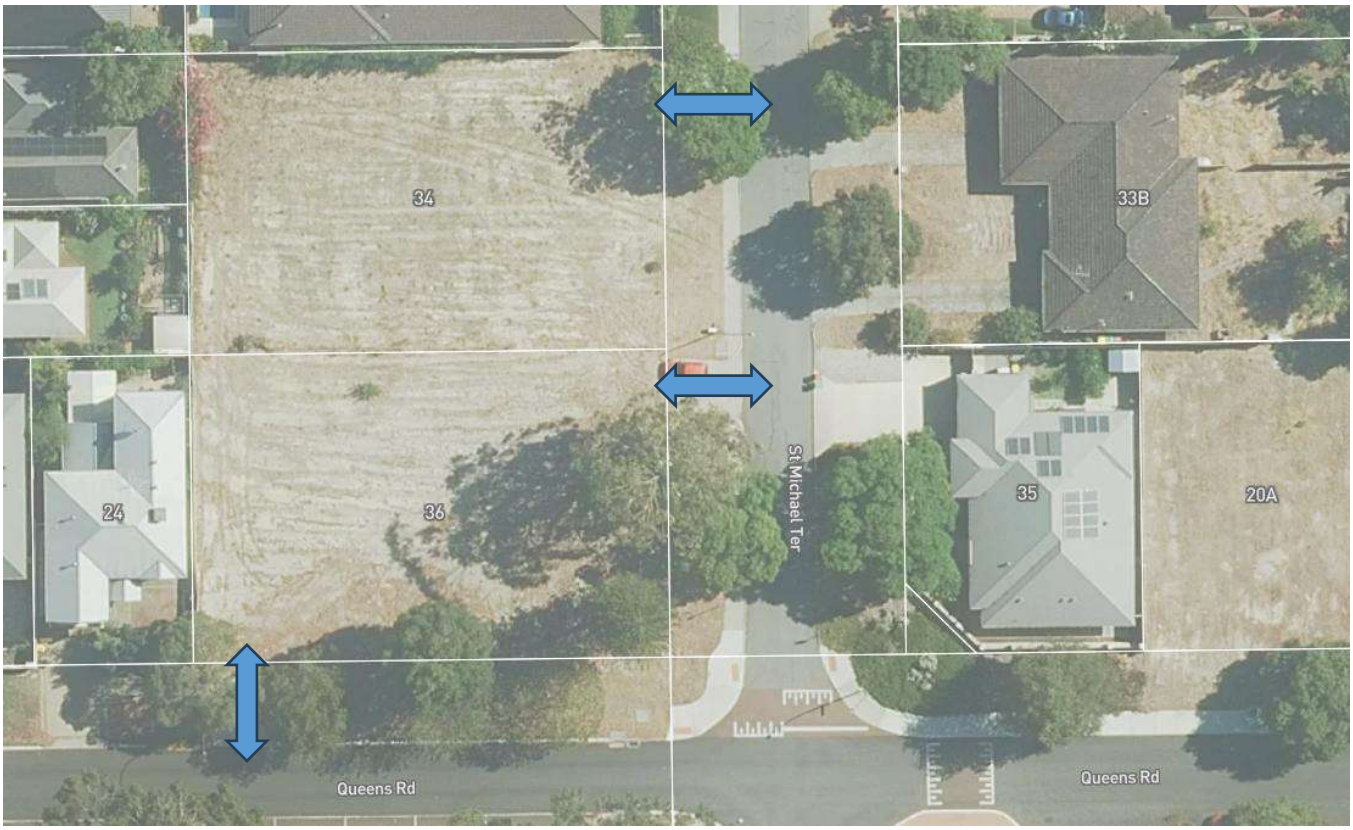


Figure 2: Existing vehicle access

3.2 Proposed vehicle access

Vehicle access for the child care centre is proposed via one crossover on St Michael Terrace (Figure 3). Existing redundant site crossovers will be closed as part of the development.

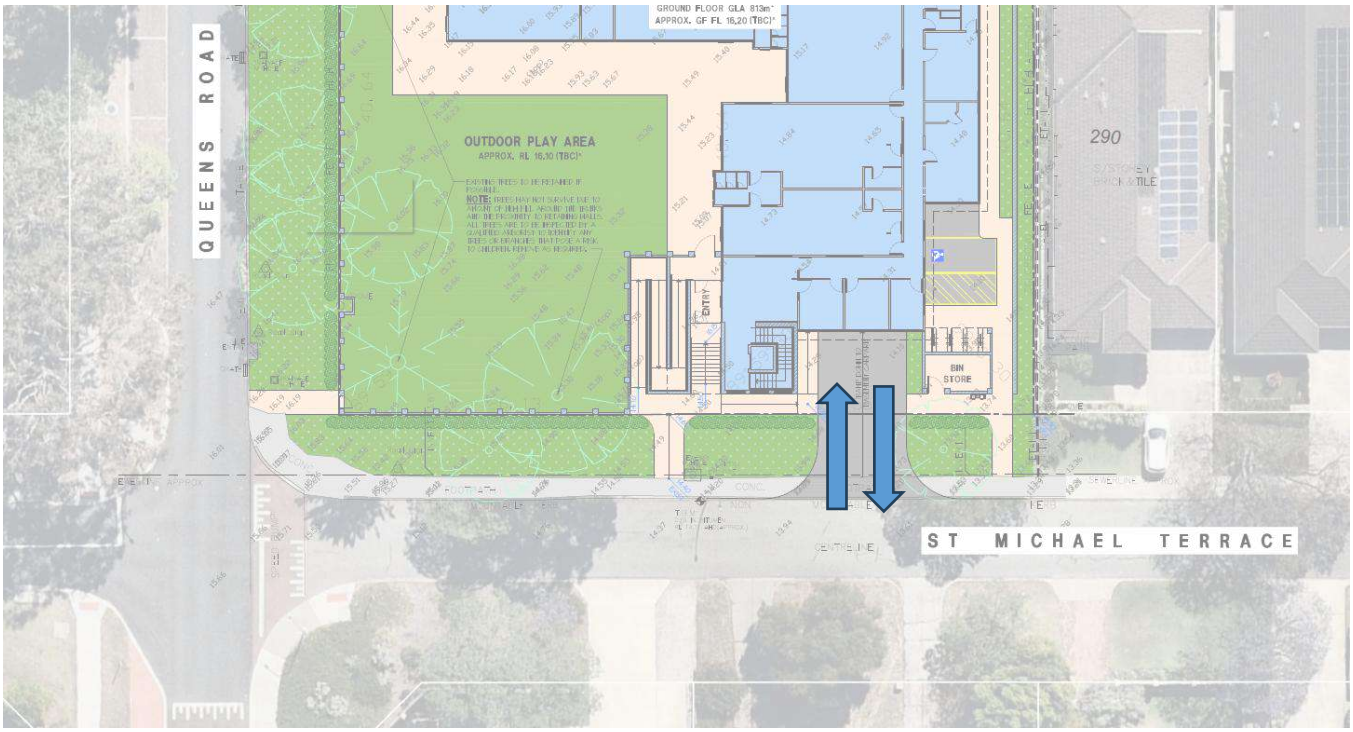


Figure 3: Proposed development vehicle access

3.3 Car parking layout

Dimensions of car parking aisles and bays are compliant with AS2890.1. Onsite visitor bays are 2.6m wide by 5.4m long and an aisle width of 6.6m has been provided. The ACROD bay is designed to AS2890.6 with a shared space and bollard. A 1m blind aisle extension is provided at the end of the car park.

A turnaround space is unlikely to be required in this car park because there is enough visitor parking for a healthy turnover of bays. Furthermore, if all the visitor bays are occupied, a parent will most likely wait in the car park for a bay to be vacated so they can pick up or drop off their child.

The parking bays fronting the child care centre building are configured to be 4.8m long, with an additional 600mm vehicle overhang. This configuration is proposed to avoid the use of wheel stops, which may cause a trip hazard fronting the building.

Tandem bays are provided at the end of the car park. These bays will be allocated for staff parking only. It is recommended that 'STAFF PARKING ONLY' signs be installed at the entry of the staff parking area (Figure 4). Staff bays are 2.4m wide.

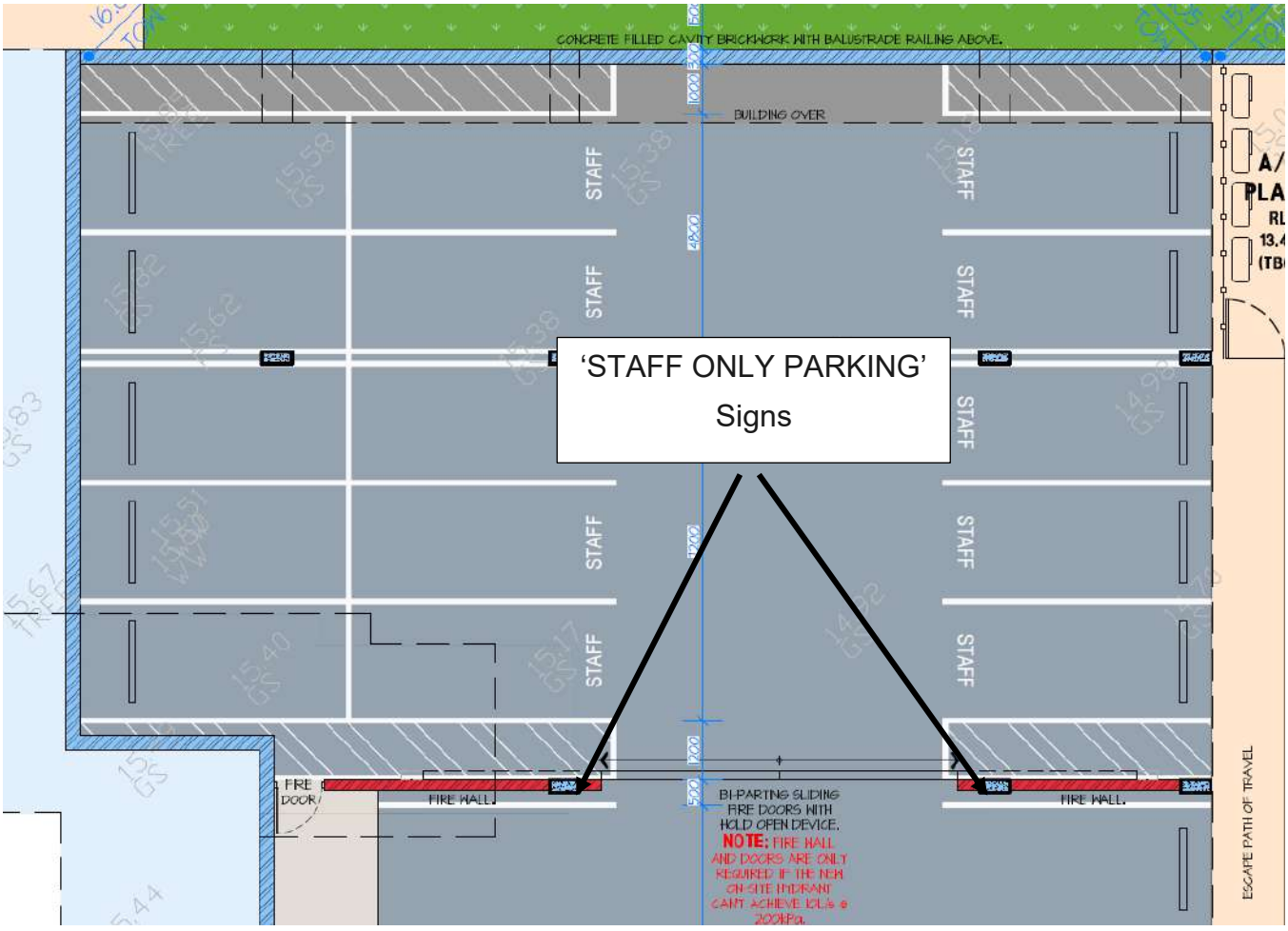


Figure 4: Recommended 'STAFF ONLY PARKING' signs

3.4 Planning assessment of parking requirements

The City of Melville *Local Planning Policy 1.6 (LPP1.6) Car Parking and Access* requires the following car parking provision for "child minding centres":

- 1 bay per 10 children; plus,
- 0.5 bays per staff member.

Application of the above rates results in a parking requirement of **26 bays**. A total of 26 car parking bays are provided onsite, which satisfies the City's parking requirement.

LPP1.6 also requires the provision of motorcycle parking spaces. ABS census data indicates that only 0.2% of education and training workers in the City of Melville travelled to work by motorcycle. This suggests that motorcycle parking is unlikely to be used, and therefore the project proponents propose to prioritise space for the provision of car parking.

3.5 Parking supply and allocation

It is proposed to provide a total of 26 car parking bays for the child care centre. This includes one ACROD bay. The following allocation is recommended, based on the parking analysis undertaken in this section of the TIS:

- 16 car bays reserved for core staff onsite;
- 8 visitor car parking bays reserved exclusively for pick-up and drop-off onsite; and,
- 2 unallocated bays for the shared use by staff and visitors (includes 1 x ACROD bay).

It is recommended that the 8 exclusive pick-up/drop-off car parking bays have time restriction signage installed "P10min" parking (10 minutes) applicable Monday to Friday between 8:00am to 9:30am and 3:00pm to 6:00pm.

The staff only bays should have "STAFF PARKING ONLY" pavement marking and signage, to prevent general vehicles from parking in those areas.

Overall, no issues are anticipated with car parking and parents can drop-off or pick-up children any time during the operating hours of the facility.

3.6 Pick-up / drop-off parking

Modelling was undertaken to estimate the demand for children's pick-up/drop-off parking. 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 5 shows that in any 7-minute period during the peak hour, the 95th percentile number of pick-ups/drop-offs within the car park will be **8 vehicles or less**. Outside of peak hours the demand for visitor parking will be much lower.

Traffic volume	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

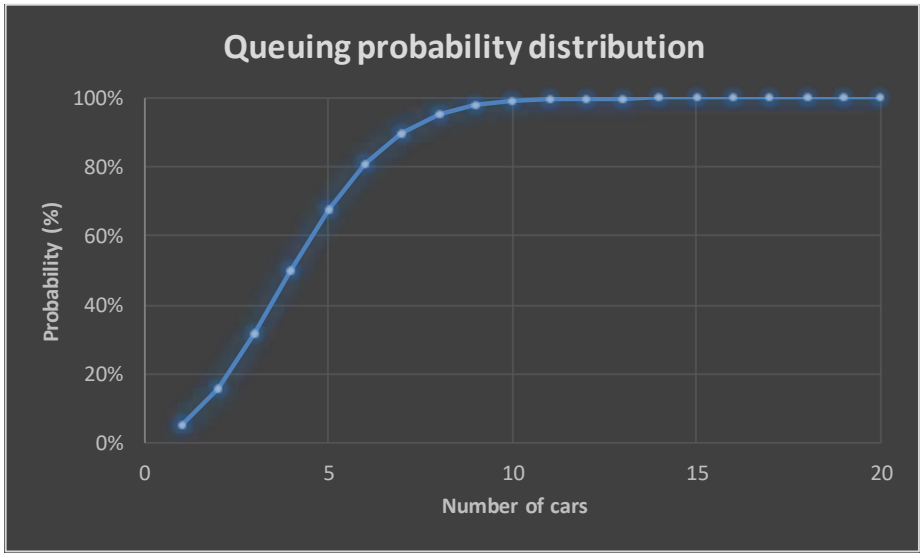


Figure 5: Probability analysis for children's drop-off/pick-up

3.7 Parking demand management

The analysis presented in this report indicates that there will be enough car parking 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 6).

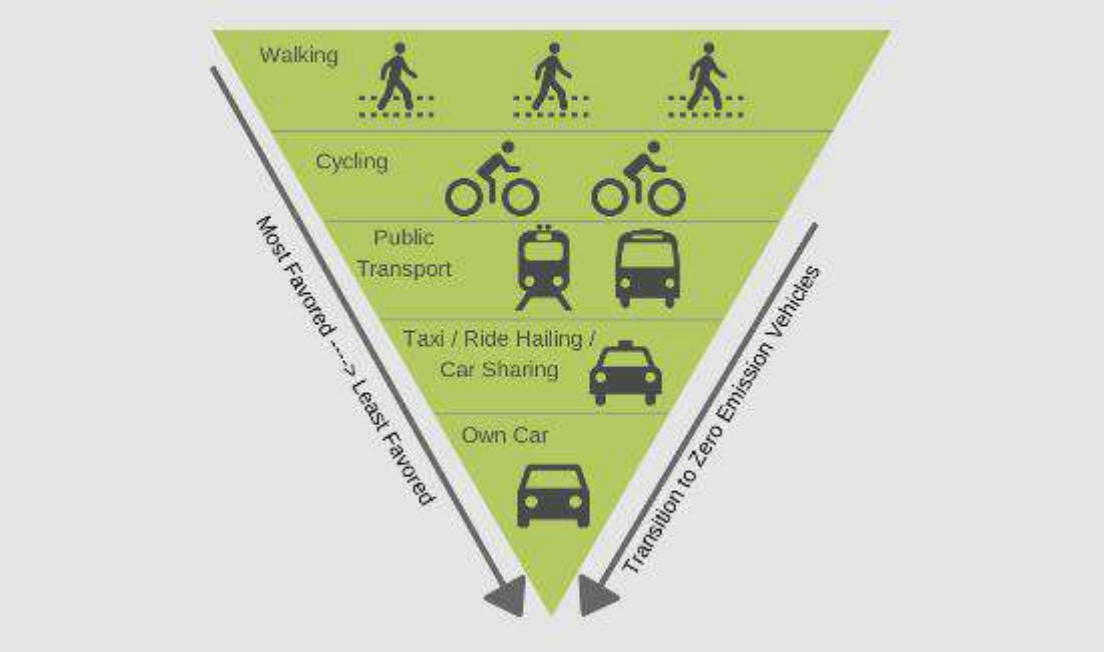


Figure 6: Sustainable transport hierarchy

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

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

4 Provision for service vehicles

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

Waste collection is proposed to be accommodated via kerbside service. Waste collection will be scheduled outside of the peak activity hours of the facility.

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.

The proposed child care centre operating hours will be 6:30am to 6:30pm, Monday to Friday.

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	0.7	0.7	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 0.7 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 0.7 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 452 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	113	452	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 7).

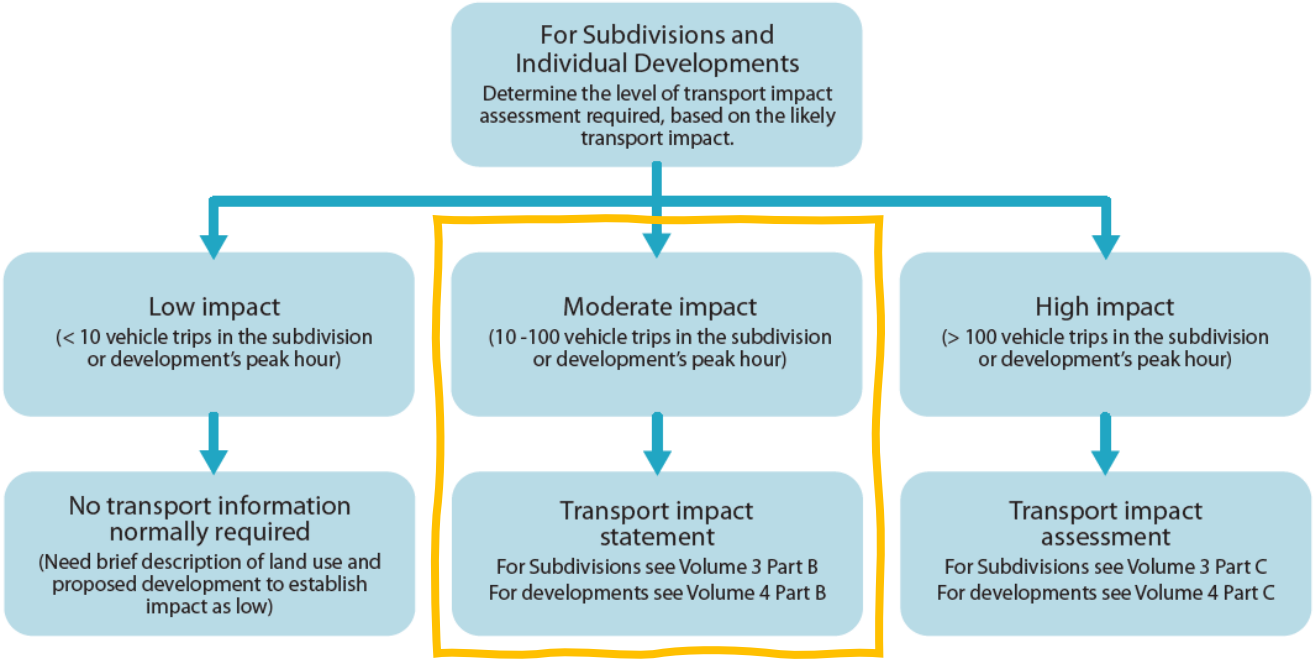


Figure 7: Level of traffic impact for subdivisions and individual developments

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.

7.1.1 St Michael Terrace

St Michael Terrace near the subject site is an approximately 5.8m wide, two-lane undivided road. A path for walking and cycling is provided on the western side of the road. Walk crossings are provided at nearby intersections, which include kerb ramps.

St Michael Terrace is classified as an *Access* road in the Main Roads WA road hierarchy (Figure 8) and operates under a speed limit of 50km/h (Figure 9). Access roads are the responsibility of Local Government and are for the provision of vehicle access to abutting properties. (Figure 10).

A 40km/h school speed zone is in place on school days. A raised, red-asphalt threshold treatment is provided on St Michael Terrace at the intersection with Queens Road.

7.1.2 Queens Road

Queens Road near the subject site is an approximately 6m wide, two-lane undivided road. A path for walking and cycling is provided on the southern side of the road. Walk crossings are provided at nearby intersections, which include kerb ramps.

Queens Road is classified as an *Access* road in the Main Roads WA road hierarchy (Figure 8) and operates under a speed limit of 50km/h (Figure 9). Access roads are the responsibility of Local Government and are for the provision of vehicle access to abutting properties. (Figure 10).

A 40km/h school speed zone is in place on school days.

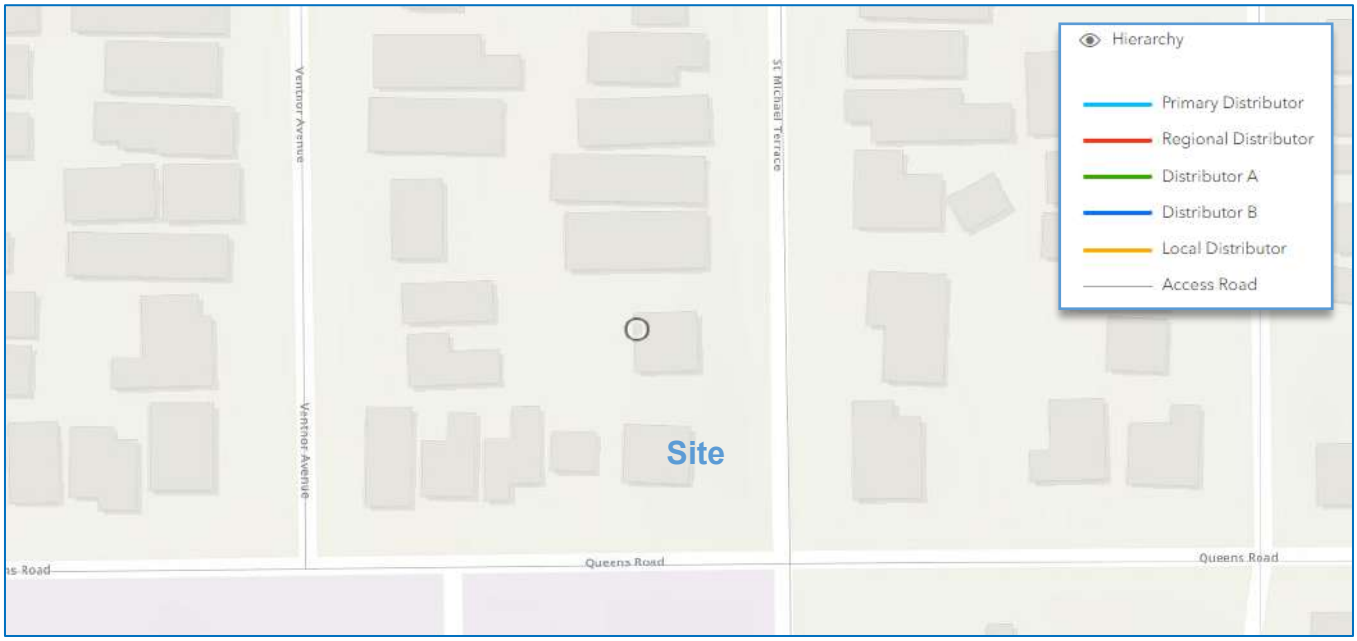


Figure 8: Main Roads WA road hierarchy plan

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

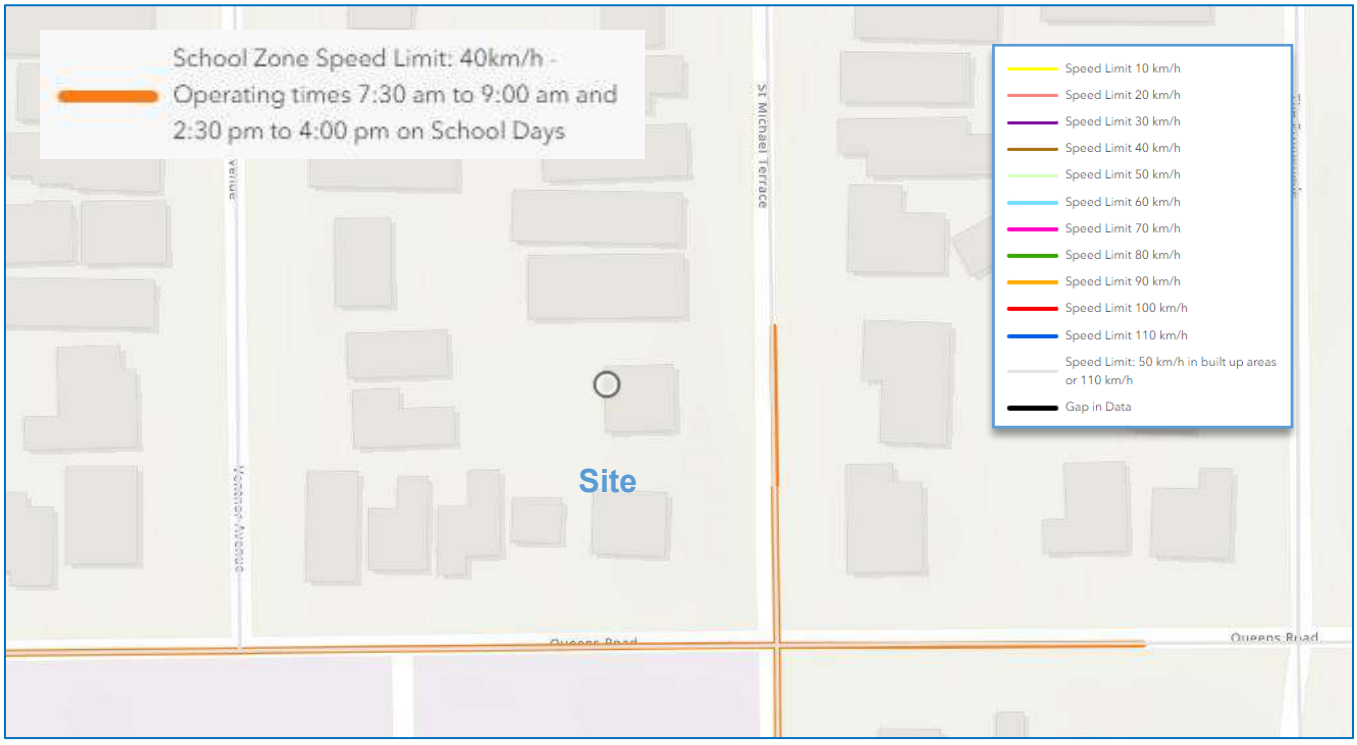


Figure 9: Main Roads WA road speed zoning plan

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

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

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

Figure 10: Road types and criteria for Western Australia

Source: Main Roads Western Australia D10#10992

8 Public transport access

Information was collected from Transperth and the Public Transport Authority 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 160: East Perth - Fremantle Stn via Willagee & Booragoon.

Public transport services provide a viable alternative mode of transport for staff and visitors to the proposed development.

The closest bus stops are located on Reynolds Road, less than 300m walk from the site (Figure 11). Bus services provide excellent coverage and connectivity to the rail network.

The existing public transport network plans are shown in Figure 12.

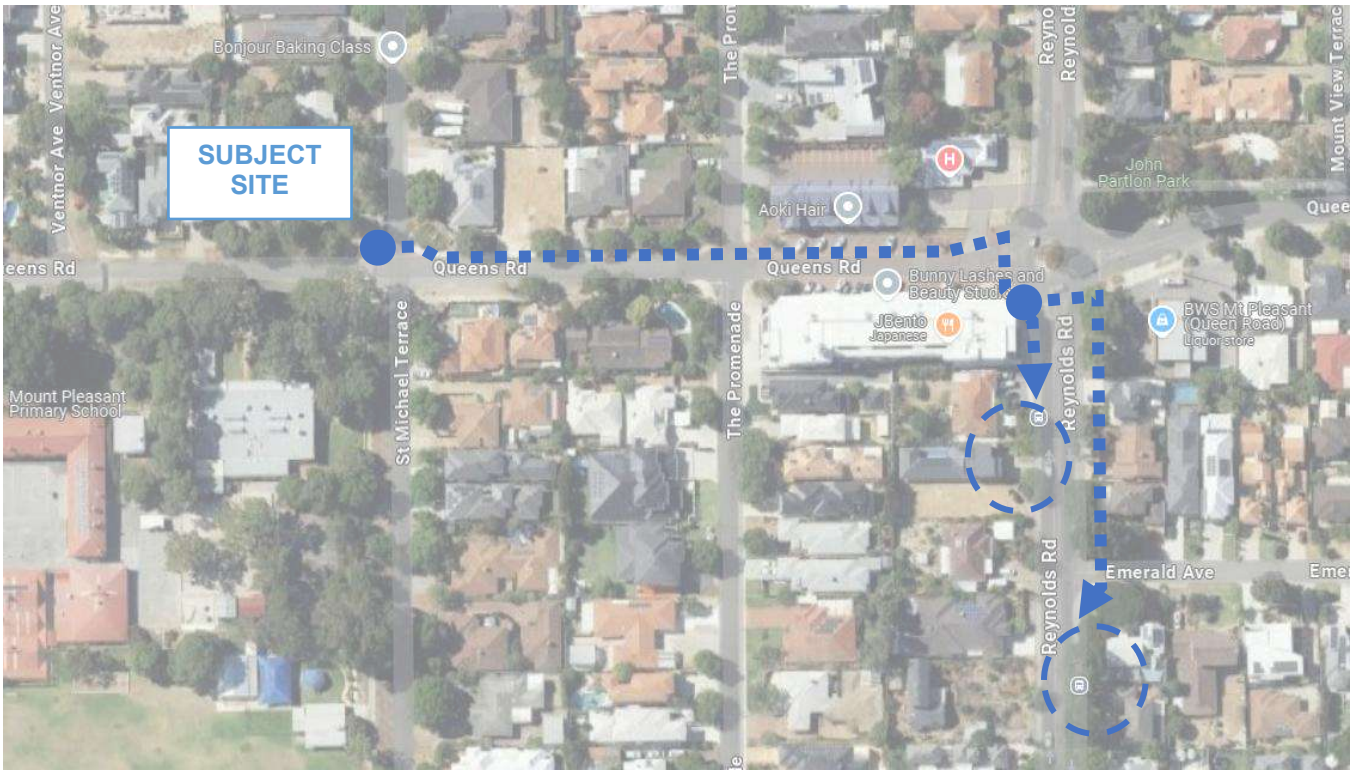


Figure 11: Closest bus stops serving the proposed development

Figure 12: 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.

9.1.1 Pedestrian facilities and level of service

Footpaths are provided on St Michael Terrace and Queens Road adjacent 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

10 Bicycle access

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

10.1 Bicycle network

The Perth and Peel Long Term Cycle Network (LTCN) designates routes by their function, rather than built form. Function considers the type of activities that take place along a route, and the level of demand (existing and potential). The built form of a route is based on the characteristics of the environment, including space availability, topography, traffic conditions (speed, volumes), and primary users. The cycling network hierarchy is described in Figure 13.

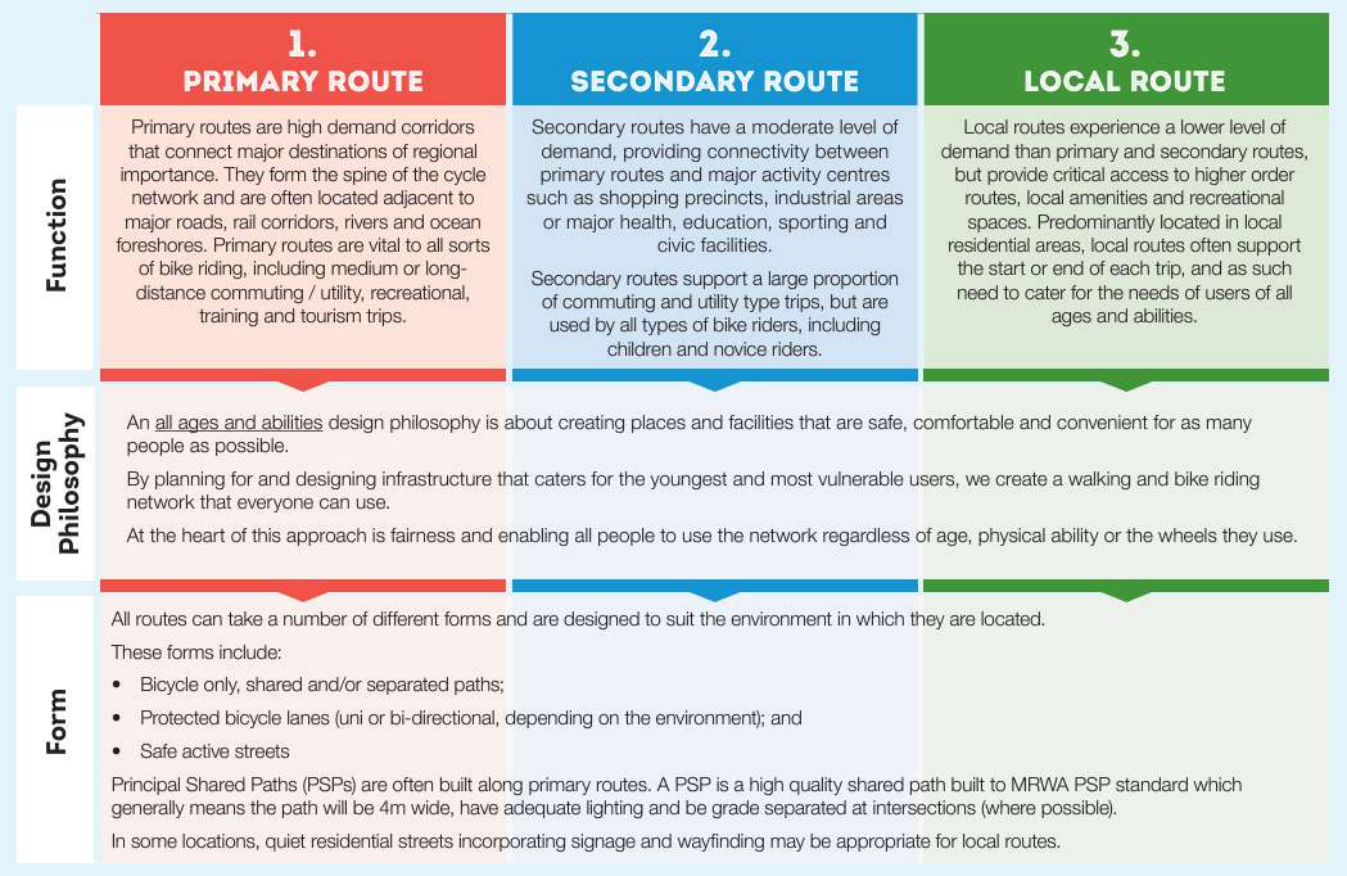


Figure 13: Western Australian Cycling Network Hierarchy

The Long-Term Cycle Network plan is detailed in Figure 14. No LTCN routes run past the subject site. However, footpaths are provided along surrounding roads, which may be used for cycling.

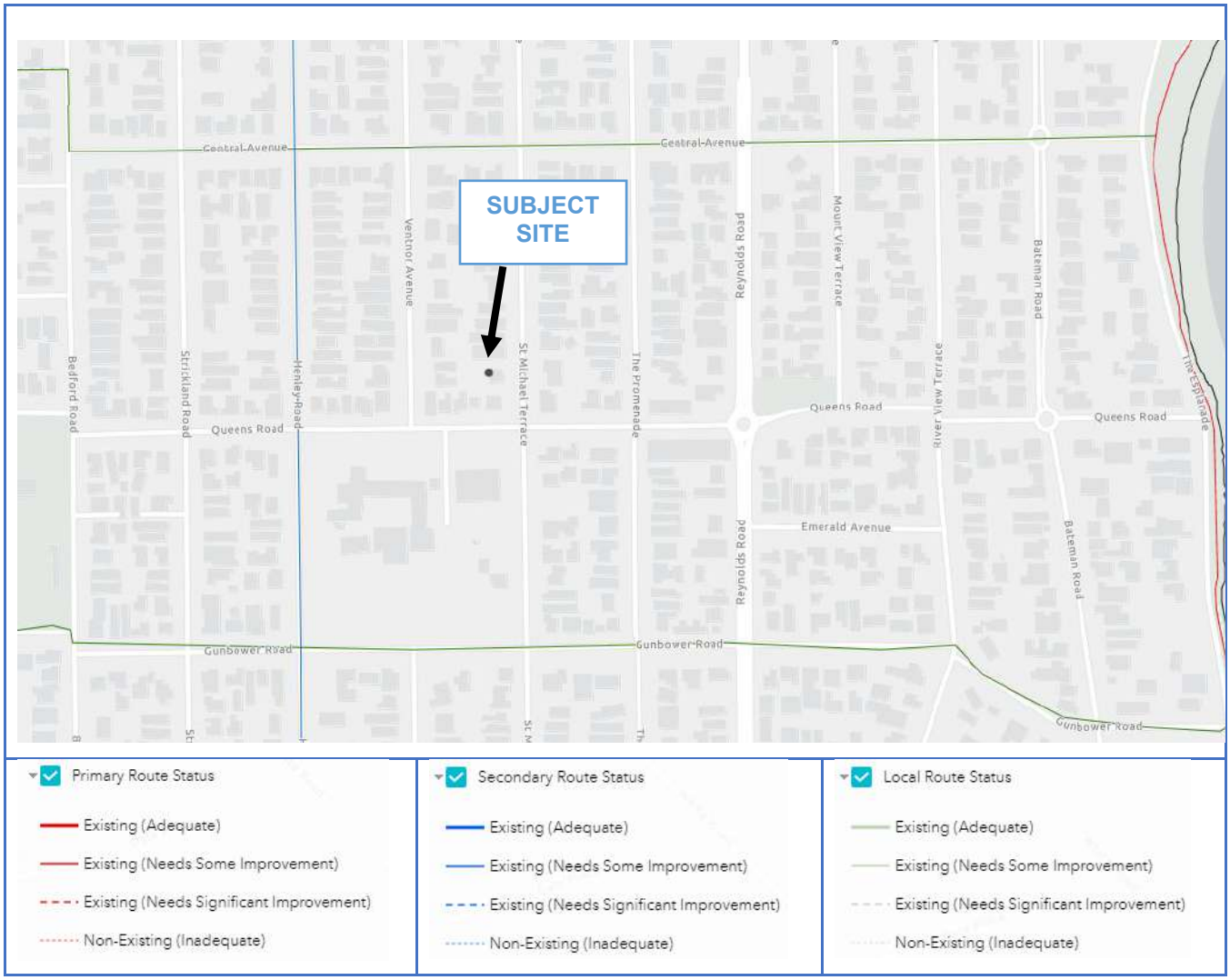


Figure 14: Perth and Peel Long Term Cycle Network plan (LTCN)

10.2 Bicycle parking and end of trip facilities

4 x double-sided bicycle racks are provided within the site near the main entry, providing parking for up to eight bicycles. End of trip facilities including a shower, change room and lockers are provided to encourage active transport for staff.

10.3 Sustainable transport catchment

As detailed in Figure 15, the subject site is well placed for staff and visitors to travel by sustainable modes of transport. A large catchment of people exists within a comfortable 8km or 20-25min cycling or micromobility journey to the site.

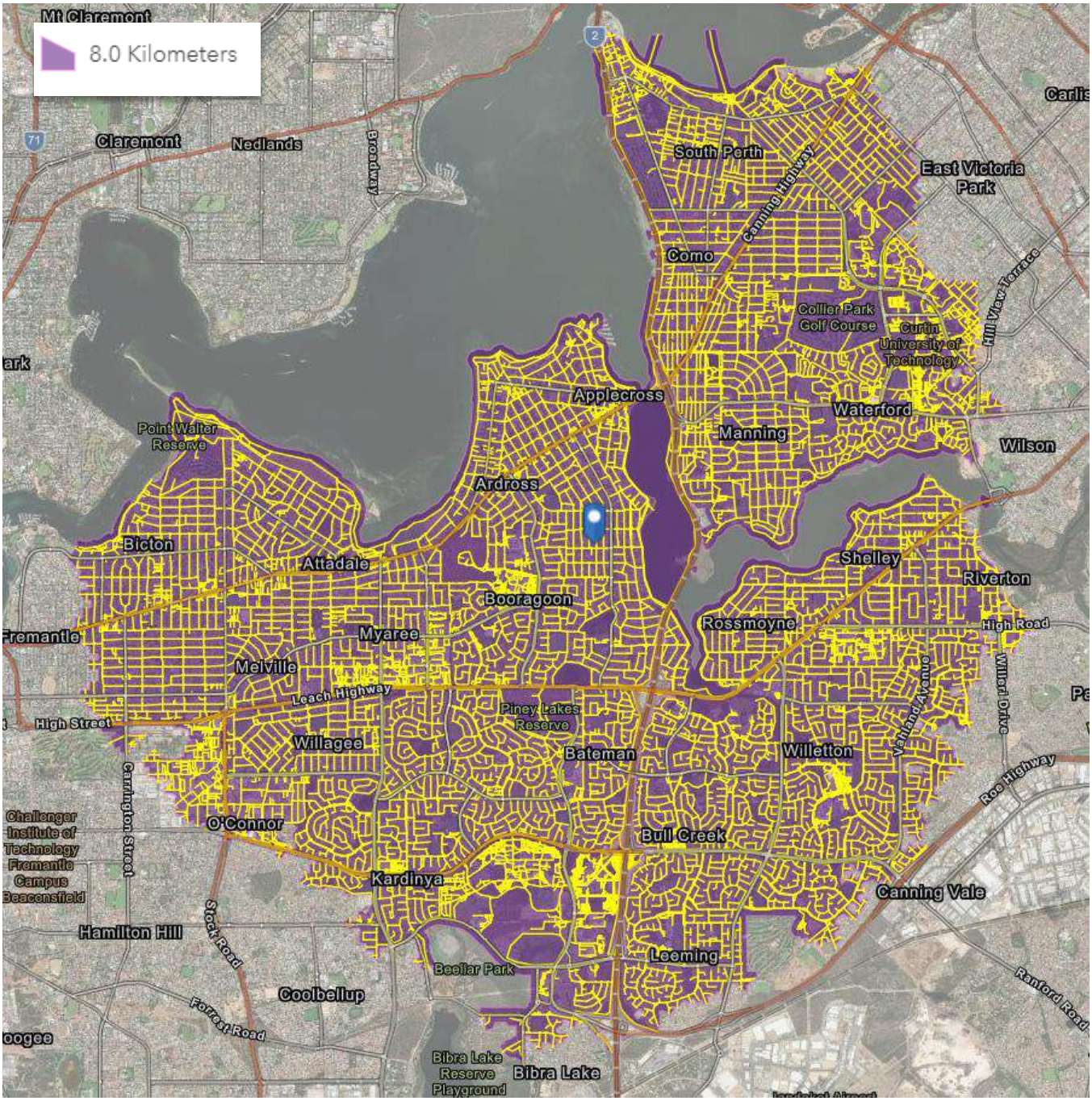


Figure 15: Cycling and micro-mobility catchment

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 16, one crash was recorded in the immediate locality in the last five years. The detailed crash history is presented in Table 4.

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

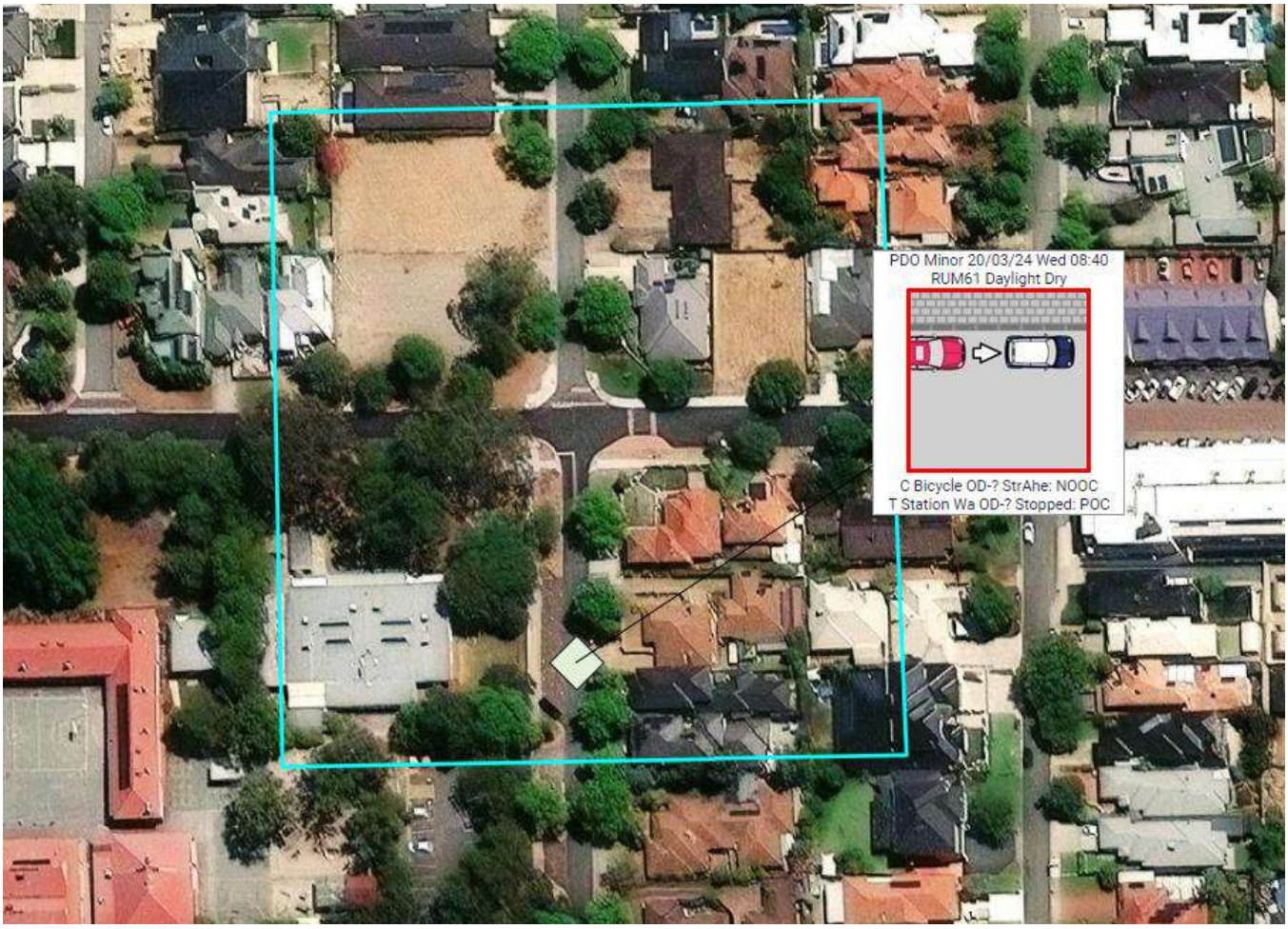


Figure 16: 5-year crash map in the locality (2020-2024)

Source: MRWA crash mapping tool

Table 4: 5-year crash history in the locality (2020-2024)

Severity	No.	%
Fatal	0	0
Hospital	0	0
Medical	0	0
PDO Major	0	0
PDO Minor	1	100.00

Year	No.	%
2024	1	100.00

Nature	No.	%
Head On	0	0
Hit Animal	0	0
Hit Object	0	0
Hit Pedestrian	0	0
Non Collision	0	0
Not Known	0	0
Rear End	1	100.00
Right Angle	0	0
Right Turn Thru	0	0
Sideswipe Opposite Dirn	0	0
Sideswipe Same Dirn	0	0

Light	No.	%
Dark - Street Lights Not Provided	0	0
Dark - Street Lights Off	0	0
Dark - Street Lights On	0	0
Dawn Or Dusk	0	0
Daylight	1	100.00
Not Known	0	0

Conditions	No.	%
Dry	1	100.00
Not Known	0	0
Wet	0	0

Alignment	No.	%
Curve	0	0
Not Known	0	0
Other / Unknown	1	100.00
Straight	0	0

Total	1

13 Conclusion

This Transport Impact Statement has been prepared by Urbii on behalf of Carcione Nominees Pty Ltd with regards to the proposed child care centre, located at 34-36 St Michael Terrace, Mount Pleasant.

The subject site is situated on the north-west corner of St Michael Terrace and Queens Road. The site is presently vacant and is surrounded by a mix of residential, education and commercial land uses.

It is proposed to develop the site into a child care centre catering for up to 113 children and 29 staff.

The site features good connectivity with the existing road, cycling and walking network. There is good public transport coverage through nearby bus services and access to the rail network.

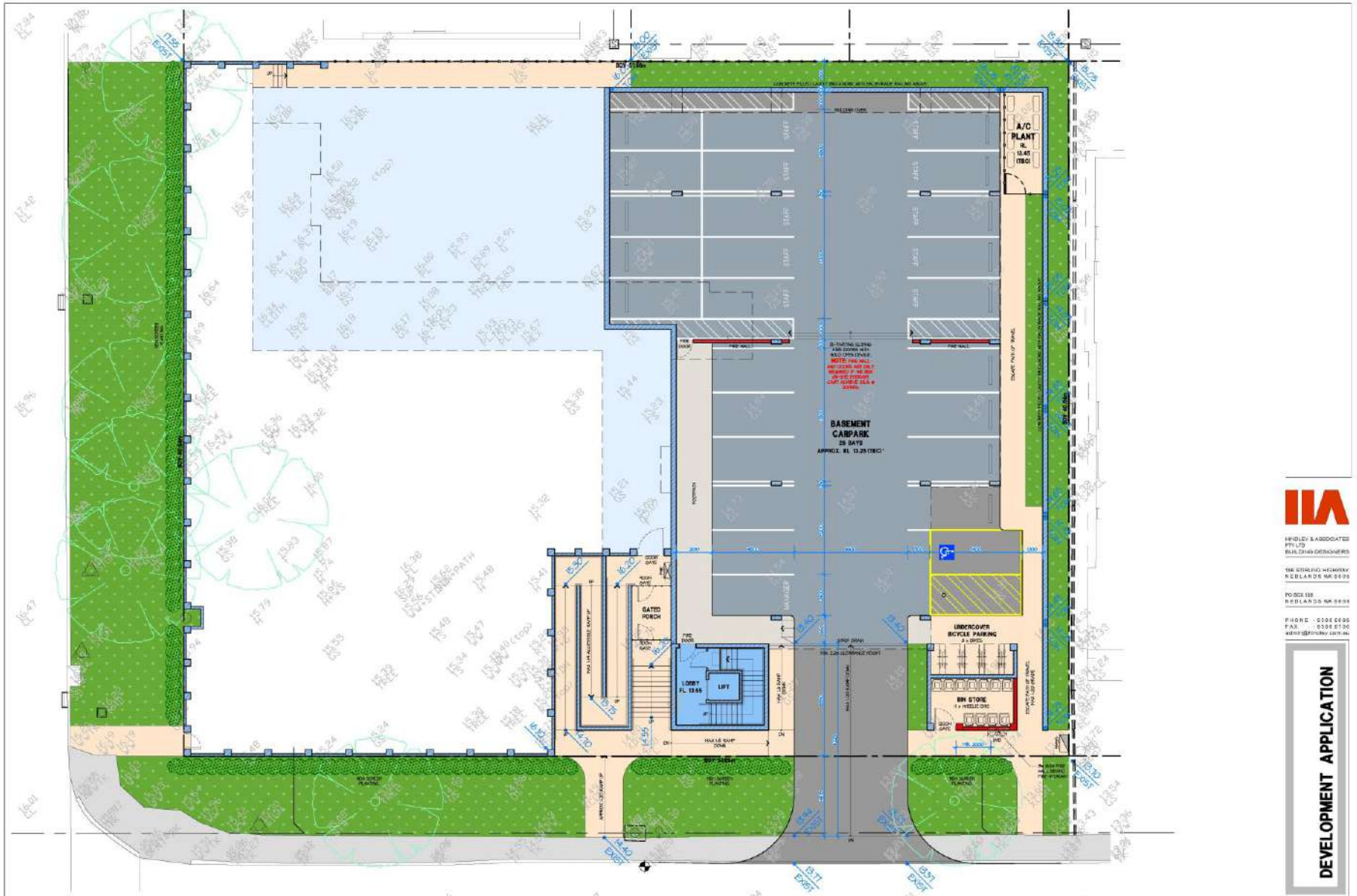
The traffic analysis undertaken in this report shows that the traffic generation of the proposed development is moderate (less than 100vph on any lane) and as such would have moderate impact on the surrounding road network.

The proposed car parking provision meets the practical needs of the development.

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

Appendices

Appendix A: Proposed development plans



HINDLEY & ASSOCIATES PTY LTD
BUILDING DESIGNERS

NO	DATE	REVISION	DRAWN	CHECK
A	15.05.25	ISSUED FOR DA	JUR	SOS
B	30.05.25	TOWN PLANNERS COMMENTS	JUR	SOS

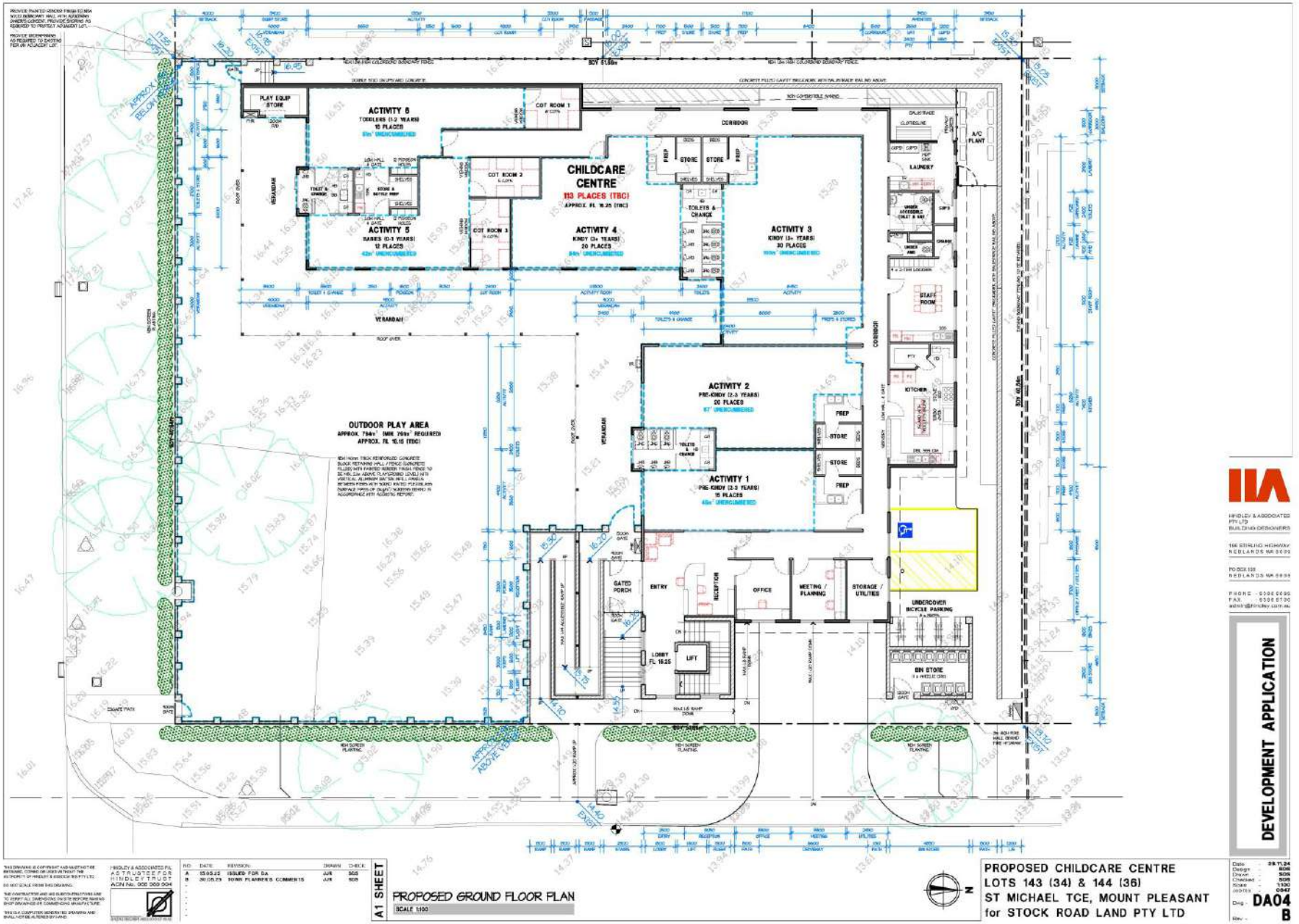
A1 SHEET

PROPOSED BASEMENT FLOOR PLAN
SCALE 1:100

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

DEVELOPMENT APPLICATION

Date - 28.11.24
Design - SOS
Drawn - SOS
Checked - SOS
Scale - 1:100 @A1
Dwg - DA03
Rev - B



HINDLEY & ASSOCIATES PTY LTD
BUILDING DESIGNERS

DEVELOPMENT APPLICATION

NO	DATE	REVISION	DRAWN	CHECK
A	15.05.25	ISSUED FOR DA	JUR	SOS
B	30.05.25	TOWN PLANNERS COMMENTS	JUR	SOS

A1 SHEET

PROPOSED GROUND FLOOR PLAN
SCALE 1:100

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date 28.11.24
Design SOS
Drawn SOS
Checked SOS
Scale 1:100
Job No. 0947
Dwg. DA04
Rev. B

Appendix D – Tree Protection Report

WESTWORKS
CONSULTANCY

Tree Protection Report

Location: 34-36 St Michaels Terrace, Mount Pleasant

Report Prepared for: Carcione Group of Companies

Date: 12 December 2024

Mark Short
Grad Cert Arboriculture

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Table of Contents

1.0 Introduction

An assessment was undertaken on 10 trees located within the subject area addressed to 34-36 St Michaels Terrace on the 9th of December 2024, to provide information regarding the protection of trees on site from the planned development.

The subject area requested for survey is planned for the demolition of the house and development of a two-story structure with a car park.

A Tree Protection Report outlines the requirements for protecting trees identified for retention in accordance with the Australian Standard AS4970:2009-Protection of Trees on Development Sites and provides an overview of the health, structure, dimensions and tree protection zones for each individual tree.

2.0 Methodology

This tree assessment consisted of a ground based basic tree assessment utilising the principals of Visual Tree Assessment (VTA) as outlined by Mattheck and Breloer (1994) and Lonsdale's approach (1999) and methods as per The Australian Standard for Protection of Trees on Development Sites (AS 4970- 2009)

This assessment also included the following:

- Collecting details of the Protections zone for the whole tree and Structural Root Zone
- Careful consideration of each tree's requirements in conjunction with the clients limitations to produce recommendations to best protect and work around each tree as required

The trees were assessed against the following areas:, using the following tools.

- Acoustic hammer.
- Forestry Workers Measuring Tape.
- Camera.
- Probing tools

Please note: an aerial assessment, PiCUS sonic tomograph and soil or tissue sampling was not undertaken during this assessment, however, each are an available option for an additional assessment should the results of this investigation deem it appropriate.

2.1 Species Identification.

This consultant and associates have a combined over 20 years' experience working with Western Australian tree species, with key proficiency identifying those which are endemic and native to the local Perth regions. Additionally, there are resources to the disposal of Westworks Consultancy to assist in tree species identification including, but not limited to, peer reviewed books and journals, outsourced associates with particular expertise and access to the Western Australian Herbarium (Department of Biodiversity, Conservation and Attractions).

2.2 Tree Measurements

- The height of the tree is an approximate height taken in meters (m)
- The canopy spread gives an indication of the general spread of the canopy in meters.
- The diameter of the trunk (DBH) is measured at 1.4m above ground level.
- The diameter of the root flare (DRF) is measured as low to the ground as possible.

2.3 Methodology – Tree Health

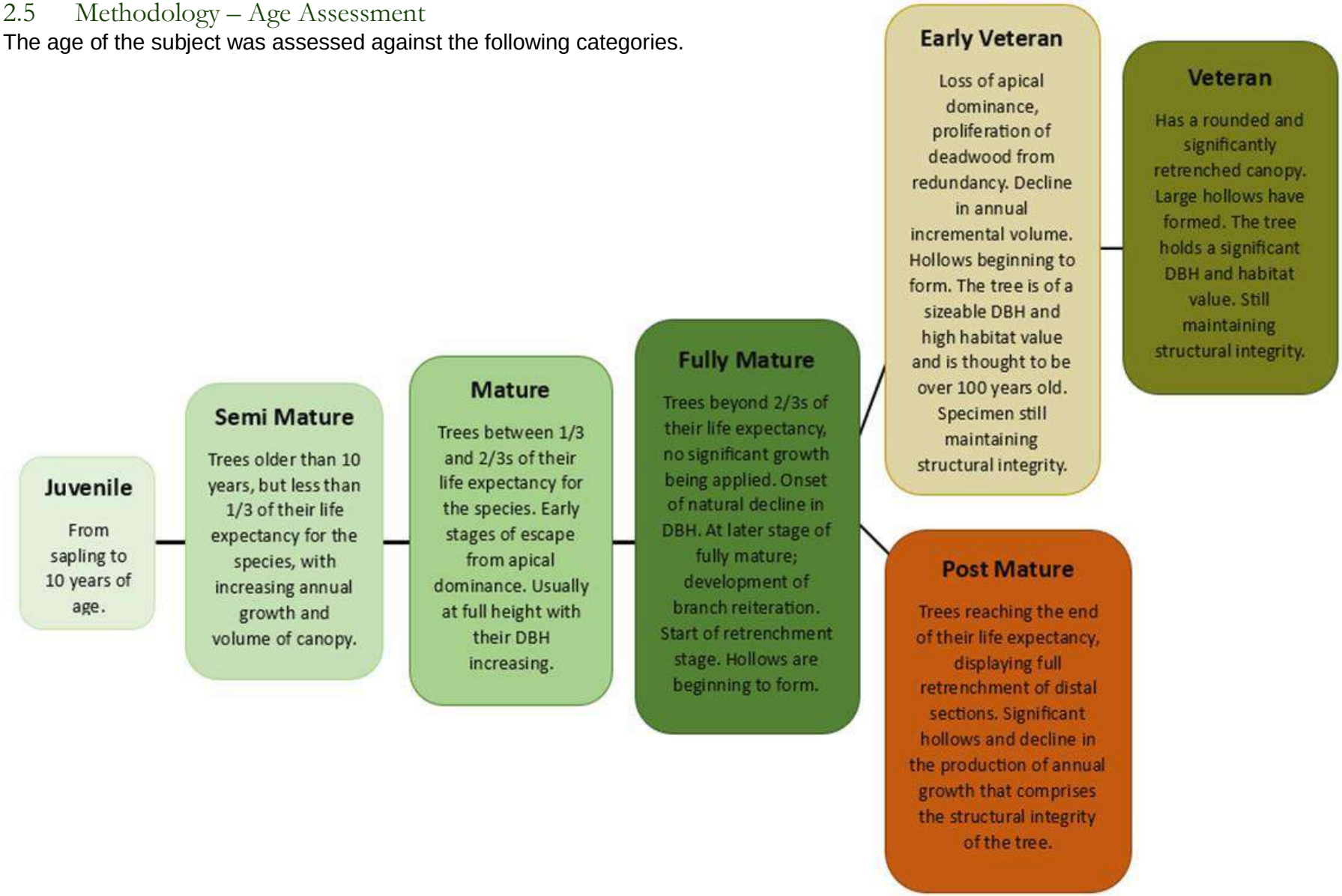
- **Good:** The tree will show good to excellent vigour throughout the tree for the species. The tree will exhibit a full and healthy canopy of foliage with only minimal pest or diseases evident.
- **Fair:** The tree is growing in a reasonable condition and shape with adequate canopy foliage for the species. Minor dead wood may be present throughout the crown, with reasonable colour and density when compared to a typical healthy specimen of that species.
- **Poor:** The tree appears stunted and not growing to its full capability with the canopy potentially visibly showing signs of openness and thinning with excessive amounts of dead or dying limbs. Evidence of established pest and disease issues will be evident or symptoms of stress indicating the tree is in decline.
- **Very poor:** The tree is in a state of decline with the canopy visibly open with considerable deadwood with pest and diseases being present throughout the tree as it enters the final stages of senescing.
- **Dead:** No more living tissue evident.

2.4 Methodology - Structure

- **Good:** The tree will have optimum spacings of first order branches, with open angles of attachment and no inclusions, the trunk is applying very visible signs of annualised response growth. There are no observable defects. This is a high-quality specimen for the species.
- **Fair:** The tree is displaying evenly spaced first order branches, with structurally sound unions, the trunk is applying annualised wood to maintain optimum structural integrity. There may be some minor defects, yet the tree is managing these appropriately. This is a “normal” specimen for the species.
- **Poor:** Minor structural defects observed, there may be damage to the cambium, included bark, which reduces the structural integrity of a union, and/or the tree may have been lopped, which has significantly altered its form.
- **Very poor:** The tree is in a state of decline with poor branch spacings and attachment. Major structural defects have been observed.
- **Has Failed:** The tree is of a significantly poor structural integrity to the point where A failure event was observed to have occurred.

2.5 Methodology – Age Assessment

The age of the subject was assessed against the following categories.



2.6 Useful Life Expectancy

- **Very Long** (Greater than 40 + years)

  Very high quality and high value, these trees would hold such a condition that make them a valuable part of the environment/ landscape, would be considered to hold a Useful Life Expectancy (ULE) of greater than 40 years, thus allowing them to make a substantial contribution for a long period of time.

- **Long** (Greater than 20 to 40 years)

  High quality and high value, these trees would hold such a condition that make them a valuable part of the environment/ landscape, would be considered to hold a Useful Life Expectancy (ULE) of 40 years of greater, thus allowing them to make a substantial contribution.

- **Medium** (Between 11 and 20 years)

  Medium quality and medium value, trees of this category are thought of as making a significant contribution to the area they dwell in and would be considered to hold a ULE of a minimum of 20 years.

- **Short** (Between 6 and 10 years)

  Low quality and low value. These trees would be regarded as being in an adequate condition that would see them being retained for a period that would allow new plantings to establish. They would be considered as having a ULE of 5 to 10 years.

- **Transient** (Less than 5 years)

  Very Low quality and very low value, these trees would be regarded as having a poor form, displaying a low vitality, and may be exhibiting initial signs of structural decline. They would be considered to have a ULE of less than 5 years and are to be included in a plan for replacement.

- **Dead or hazardous** (no remaining ULE).

  Trees in this category would be considered to hold such a condition that would potentially hold no value or in their current state it would be reasonable to undertake their removal for reasons of sound Arboricultural management, due to a high level of risk.

3.0 Tree Information Required for Protection

The Australian standard for Protection of trees on development sites, AS 4970 – 2009, serves to set out protection measures for trees throughout the period of construction and is comprised of two zones (Diagram 1).

Tree Protection Zone

The Tree Protection Zone (TPZ) considers protection of both the canopy and roots. For this protection zone to be effective, it is ideal that no plant or equipment intrude throughout the duration of excavation or construction.

The Tree Protection Zone should be the primary consideration during the design process, and only when absolutely necessary should it fall to the second zone.

Structural Root Zone

The second zone is the Structural Root Zone (SRZ). This area considers the larger roots, those which function primarily as anchor support for the tree, keeping it upright and in the ground. Disturbance and damage to these roots can have long lasting effects on the tree's overall condition, for this reason it is generally considered to be the 'No Dig Zone.'

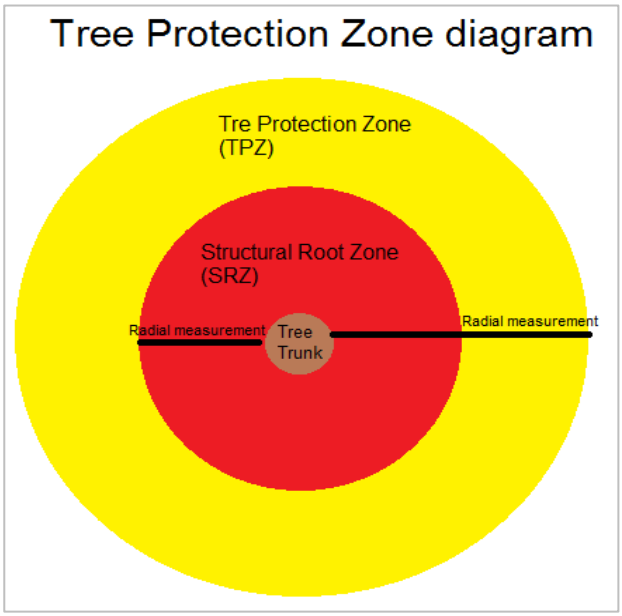
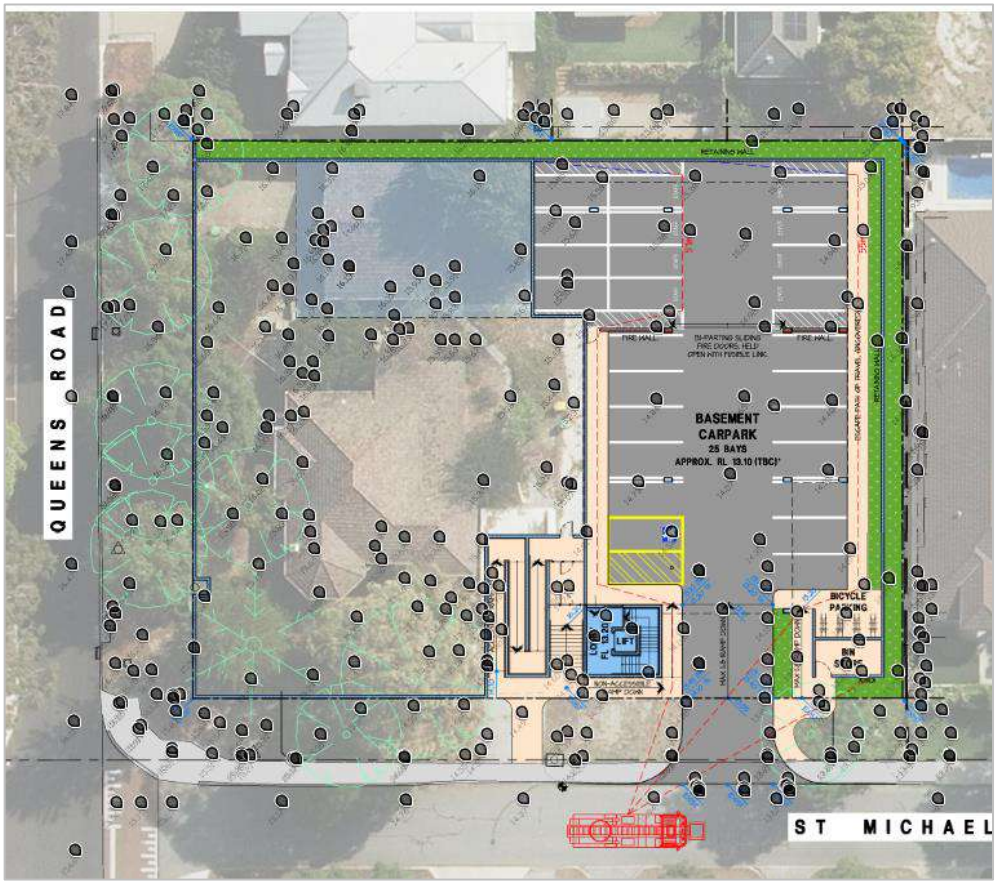


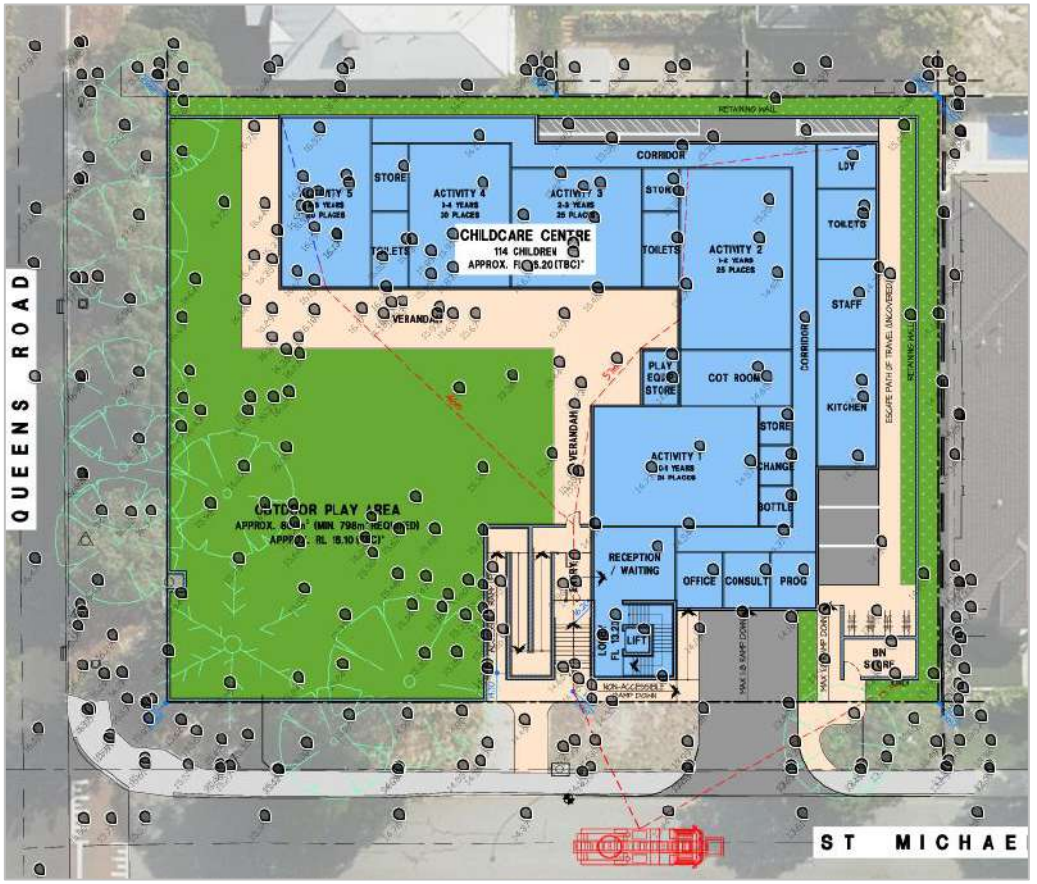
Diagram 1. Order and size of the Tree Protection Zone (TPZ) and the Structural Root Zone (SRZ).

However, consultation with a Project Arborist during the planning and design stage can allow encroachment into these zones up to a maximum area threshold of 10%. It is essential that this work be discussed with the Project Arborist to ensure a tree is in suitable condition to handle the stress, as well as to ensure the encroachment is minimal – variations of this threshold may exist for individual trees depending on the existing status of the root zone. Any work carried out in these zones must be supervised by a qualified Project Arborist until encroachment has ceased.

Information regarding method requirements for this work can be provided following consultation with this consultant when more information regarding the design and work requirements are available

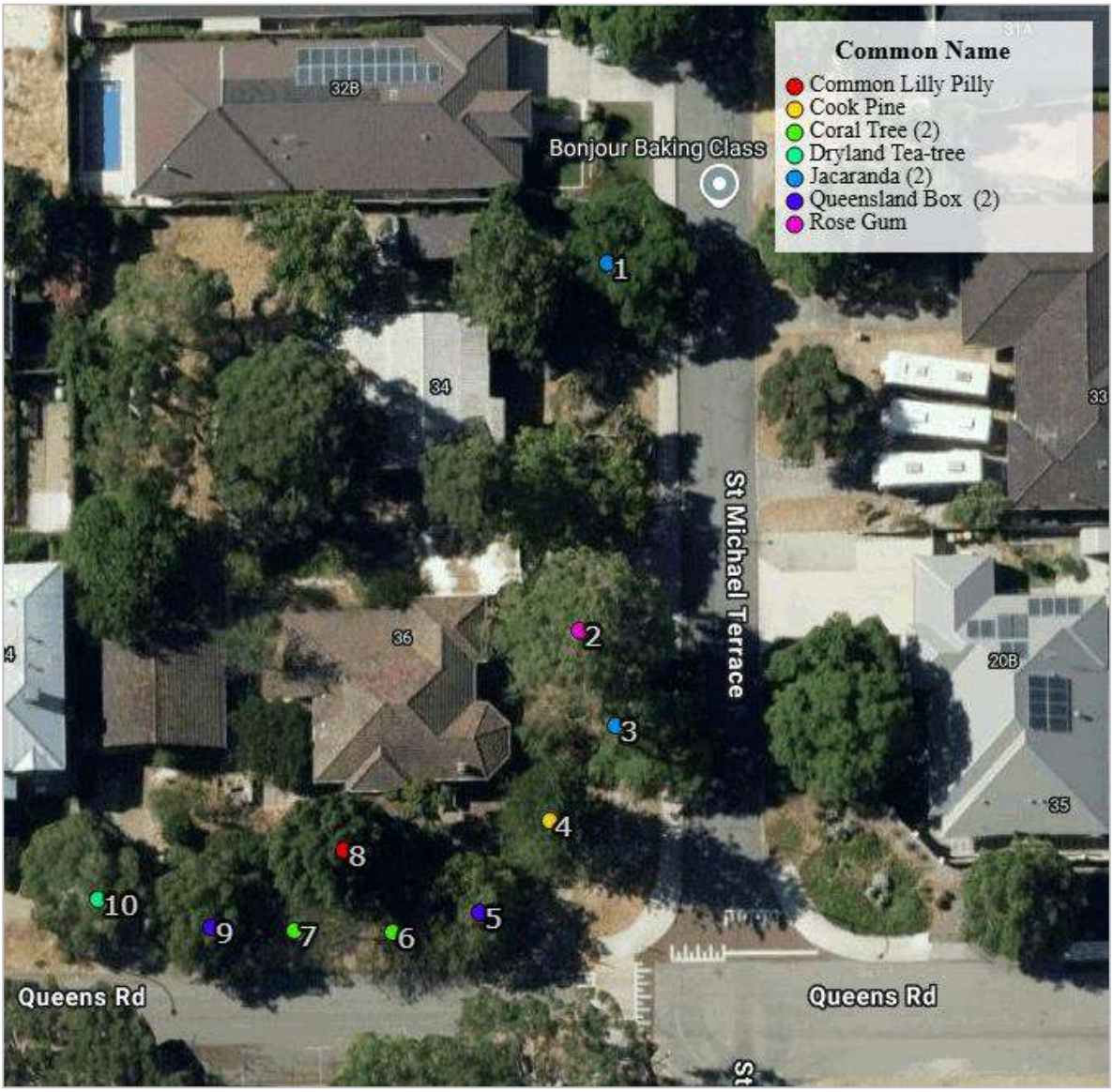
4.0 Concept Plan





5.0 Location of Subject Tree(s)

Subject trees are marked with coloured dots, correlating to their species name in the legend provided.



6.0 Tree Assessment

Each of the 10 subject trees collected in the subject area is allotted a single page summary report, produced using an arborist specific GIS software.

All observations presented in this report are true for the date of assessment (9 December 2024).

Details include:

- Descriptions of the subject trees' health and structure
- The measurements for the TPZ and the SRZ
- Any works recommended to improve the health and structural integrity of the tree.
- The latitude & longitude of the trees' location within the grounds, &
- A photo of the whole tree.

Summary reports are on the following pages.

Jacaranda Tree ID #1

Tree Details

Latin Name:	Jacaranda mimosifolia
Common Name:	Jacaranda
Tree Age:	Mature
Health:	Good
Structure:	Fair
Tree Height (Estimated) [m]:	11
Canopy Spread [m]:	12
DBH [cm]:	44
DBH Range:	30-45cm
Diameter at Root Flare (DRF) [cm]:	0.475
Tree Protection Zone (TPZ) [m]:	5.28
Structural Root Zone (SRZ) [m]:	2.42
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	None observed
Species origin:	Exotic
Work Requirements:	No Action Required
Observation Comments:	
Retention Category:	Retain

Tree Location

Longitude:	115.846283
Latitude:	-32.028783

Photos | Street View | Map View

image.jpg
09/12/2024

Rose Gum Tree ID #2

Tree Details

Latin Name:	Eucalyptus grandis
Common Name:	Rose Gum
Tree Age:	Mature
Health:	Fair
Structure:	Fair
Tree Height (Estimated) [m]:	18
Canopy Spread [m]:	16
DBH [cm]:	56
DBH Range:	46-60cm
Diameter at Root Flare (DRF) [cm]:	0.85
Tree Protection Zone (TPZ) [m]:	6.72
Structural Root Zone (SRZ) [m]:	3.09
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	Missing bark on trunk
Species origin:	Native
Work Requirements:	No Action Required
Observation Comments:	
Retention Category:	Retain

Tree Location

Longitude:	115.846260
Latitude:	-32.029037

Photos | Street View | Map View

image.jpg
09/12/2024

Jacaranda Tree ID #3

Tree Details

Latin Name:	Jacaranda mimosifolia
Common Name:	Jacaranda
Tree Age:	Mature
Health:	Good
Structure:	Fair
Tree Height (Estimated) [m]:	10
Canopy Spread [m]:	10
DBH [cm]:	38.2
DBH Range:	30-45cm
Diameter at Root Flare (DRF) [cm]:	0.425
Tree Protection Zone (TPZ) [m]:	4.58
Structural Root Zone (SRZ) [m]:	2.31
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	Deadwood
Species origin:	Exotic
Work Requirements:	Remove all deadwood over 25mm in diameter
Observation Comments:	Deadwood in canopy due to phototropism from adjacent verge tree
Retention Category:	Retain

Tree Location

Longitude:	115.846290
Latitude:	-32.029103

Photos Street View Map View

image.jpg
09/12/2024

Cook Pine Tree ID #4

Tree Details

Latin Name:	Araucaria columnaris
Common Name:	Cook Pine
Tree Age:	Mature
Health:	Good
Structure:	Fair
Tree Height (Estimated) [m]:	17
Canopy Spread [m]:	8
DBH [cm]:	50.8
DBH Range:	46-60cm
Diameter at Root Flare (DRF) [cm]:	0.59
Tree Protection Zone (TPZ) [m]:	6.1
Structural Root Zone (SRZ) [m]:	2.65
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	None observed
Species origin:	Native
Work Requirements:	Uplift canopy to 2m above ground level
Observation Comments:	Excellent specimen
Retention Category:	Retain

Tree Location

Longitude:	115.846236
Latitude:	-32.029169

Photos | Street View | Map View

image.jpg
09/12/2024

Queensland Box Tree ID #5

Tree Details

Latin Name:	Lophostemon confertus
Common Name:	Queensland Box
Tree Age:	Mature
Health:	Fair
Structure:	Fair
Tree Height (Estimated) [m]:	8
Canopy Spread [m]:	8
DBH [cm]:	37.5
DBH Range:	30-45cm
Diameter at Root Flare (DRF) [cm]:	0.44
Tree Protection Zone (TPZ) [m]:	4.5
Structural Root Zone (SRZ) [m]:	2.34
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	None observed
Species origin:	Native
Work Requirements:	Uplift canopy to 2m above ground level
Observation Comments:	
Retention Category:	Retain

Tree Location

Longitude:	115.846178
Latitude:	-32.029233

Photos Street View Map View

image.jpg
09/12/2024

Coral Tree Tree ID #6

Tree Details

Latin Name:	Erythrina sykesii
Common Name:	Coral Tree
Tree Age:	Semi mature
Health:	Fair
Structure:	Fair
Tree Height (Estimated) [m]:	7
Canopy Spread [m]:	6
DBH [cm]:	35.71
DBH Range:	30-45cm
Diameter at Root Flare (DRF) [cm]:	0.39
Tree Protection Zone (TPZ) [m]:	4.29
Structural Root Zone (SRZ) [m]:	2.23
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	Missing bark on branch, Missing bark on trunk
Species origin:	Exotic
Work Requirements:	No Action Required
Observation Comments:	
Retention Category:	Retain

Tree Location

Longitude:	115.846107
Latitude:	-32.029246

Photos Street View Map View

image.jpg
09/12/2024

Coral Tree Tree ID #7

Tree Details

Latin Name:	Erythrina sykesii
Common Name:	Coral Tree
Tree Age:	Mature
Health:	Fair
Structure:	Fair
Tree Height (Estimated) [m]:	10
Canopy Spread [m]:	10
DBH [cm]:	43.42
DBH Range:	30-45cm
Diameter at Root Flare (DRF) [cm]:	0.485
Tree Protection Zone (TPZ) [m]:	5.21
Structural Root Zone (SRZ) [m]:	2.44
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	None observed
Species origin:	Exotic
Work Requirements:	No Action Required
Observation Comments:	This tree has been lopped in the past, monitor regrowth
Retention Category:	Retain

Tree Location

Longitude:	115.846027
Latitude:	-32.029245

Photos Street View Map View

image.jpg
09/12/2024

Common Lilly Pilly Tree ID #8

Tree Details

Latin Name:	Acmena smithii
Common Name:	Common Lilly Pilly
Tree Age:	Mature
Health:	Fair
Structure:	Fair
Tree Height (Estimated) [m]:	15
Canopy Spread [m]:	11
DBH [cm]:	48
DBH Range:	46-60cm
Diameter at Root Flare (DRF) [cm]:	0.61
Tree Protection Zone (TPZ) [m]:	5.76
Structural Root Zone (SRZ) [m]:	2.69
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	None observed
Species origin:	Native
Work Requirements:	No Action Required
Observation Comments:	This tree is likely within the private property
Retention Category:	Retain

Tree Location

Longitude:	115.846067
Latitude:	-32.029189

Photos | Street View | Map View

image.jpg
09/12/2024

Queensland Box Tree ID #9

Tree Details

Latin Name:	Lophostemon confertus
Common Name:	Queensland Box
Tree Age:	Mature
Health:	Fair
Structure:	Fair
Tree Height (Estimated) [m]:	8
Canopy Spread [m]:	8
DBH [cm]:	38.7
DBH Range:	30-45cm
Diameter at Root Flare (DRF) [cm]:	0.423
Tree Protection Zone (TPZ) [m]:	4.64
Structural Root Zone (SRZ) [m]:	2.31
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	None observed
Species origin:	Native
Work Requirements:	No Action Required
Observation Comments:	
Retention Category:	Retain

Tree Location

Longitude:	115.845959
Latitude:	-32.029243

Photos | Street View | Map View

image.jpg
09/12/2024

Dryland Tea-tree Tree ID #10

Tree Details

Latin Name:	Melaleuca lanceolata
Common Name:	Dryland Tea-tree
Tree Age:	Mature
Health:	Fair
Structure:	Fair
Tree Height (Estimated) [m]:	9
Canopy Spread [m]:	9
DBH [cm]:	44
DBH Range:	30-45cm
Diameter at Root Flare (DRF) [cm]:	0.61
Tree Protection Zone (TPZ) [m]:	5.28
Structural Root Zone (SRZ) [m]:	2.69
Useful Life Expectancy:	40+ years
Observations-Structural Issues:	None observed
Species origin:	Native
Work Requirements:	No Action Required
Observation Comments:	Bat box installed on main trunk
Retention Category:	Retain

Tree Location

Longitude:	115.845866
Latitude:	-32.029223

Photos Street View Map View

image.jpg
09/12/2024

7.0 Tree Protection During Construction

In line with the Australian Standard AS4970:2009-Protection of Trees on Development Sites there are several control measures required to protect these trees.

The primary control is to ensure that once the trees have been planted that no more disturbance is made to their root zone, including the immediate areas around it where roots are being encouraged to grow. It is recommended to use the trees current SRZ and TPZ as a guide for protection post root pruning.

Within these zones site workers and contractors are NOT to allow the following to occur:

- Mechanical excavation including trenching without consulting the site Arborist.
- Excavation for silt fencing.
- Cultivation.
- Storage.
- Preparation of chemicals, including preparation of cement products.
- Parking of vehicles and plant.
- Refuelling.
- Dumping of waste.
- Placement of fill.
- Lighting of fires.
- Soil level changes.
- Temporary or permanent installation of utilities and signs.
- Physical damage to the tree.

To protect these trees, it is recommended to:

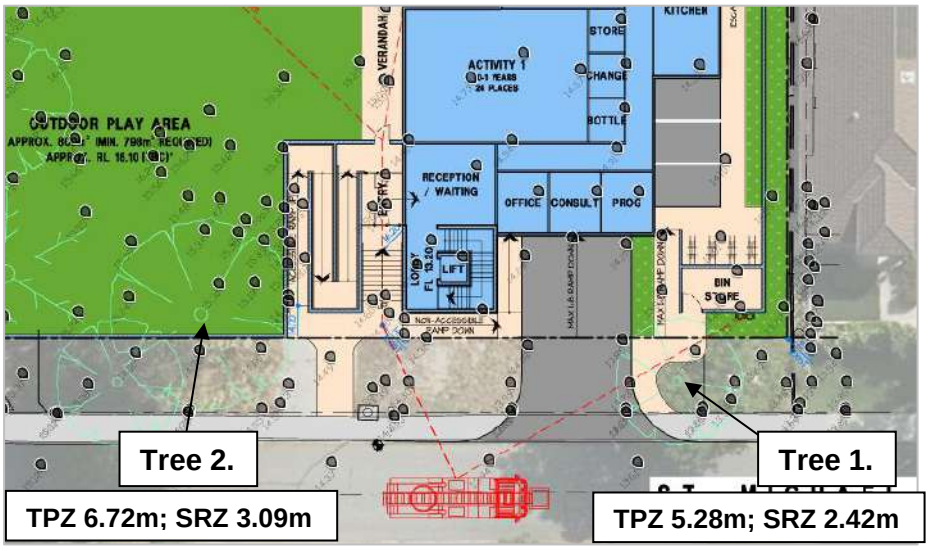
- Plan and action nearby underground services prior to transplanting or design these services outside the TPZ.
- Install tree protective fencing around each tree. the fencing should be 1.8m high and installed so that they cannot be moved.
- The fence should be identified with a TPZ sign to inform workers of the restricted access. The role of these fences is to prevent any damage to the complete tree including root system (SRZ & TPZ), stem and branch structure as well as the crown or canopy.
- Tree protection fencing rules should be included in the site induction for all employees and contractors.
- The recommended watering regime must be maintained as described.
- Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs, and counterweights (including piling rigs), in order to operate without coming into contact with retained trees.

8.0 Conclusion

All ten trees were found to be in a fair or good condition and suitable for retention. Guided by the current concept plan provided all trees are likely to have some form of development and installation encroach the TPZ and/or SRZ. The Australian Standard for the Protection of Trees on Development Sites (AS4970:2009) stipulates the TPZ to be the boundary of encroachment with a 10% threshold exception. Where possible, design modifications should be the primary step in accommodating tree protection where this threshold is likely to be exceeded. Alternatively, there are different methods of excavation and means of management that can allow for a greater encroachment, dependent on the condition of the tree, the degree of works and only when approved by a qualified arborist consultant.

Tree 1 is pictured to have a footpath beneath the canopy, through the SRZ, and the development of a slope within the TPZ. Where excavation is to occur for the change of ground level, works must be done so using Tree Protection methods which carefully expose the roots, allowing an onsite Arborist Consultant to prune those which are able to be removed. This is to prevent taring and fracturing from radiating into the SRZ causing larger issues in the future. Using the limited information currently provided, this is not expected to exceed the 10% threshold, however exact measurements will be required prior to the undertaking of the work. The development of the footpath will compact the soil above the roots, however, provided the remainder of the root plate is left open, free from impermeable materials and compaction, it is not expected to negatively impact the tree. The removal of soil must be done so with consideration, as the roots in this area are much larger and damage to this zone will have a greater impact. Additionally, this work will require movement of people, materials and machinery beneath the canopy, due diligence is required to ensure branches are not damaged in the process.

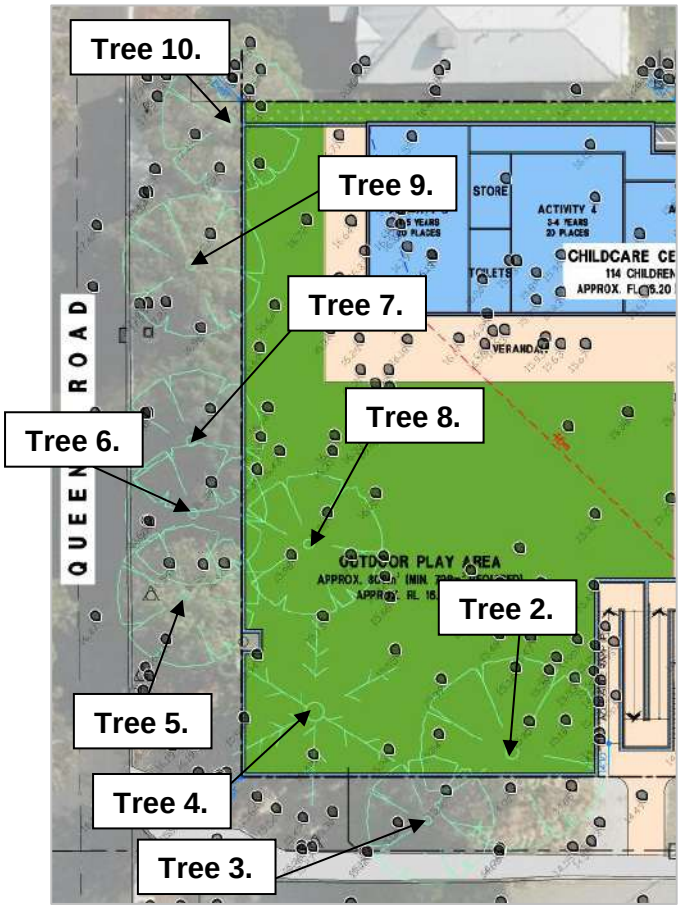
Tree 2 is pictured to have the fence or boundary wall through the SRZ, and the wall of the accessibility slope through the TPZ, and likely the canopy spread. It should be a priority to avoid the need for pruning this canopy to make room for the wall, as this will affect the form and aesthetic of the tree, as well as risking the development of exponential response growth (epicormic branches) from growing in place. Modifications are required in this area of the design if this type of preliminary work would be required.



Regarding the encroachment of the boundary wall or fence, it is recommended to consider the materials and methods required for installation to limit the degree of root disturbance. As the boundary is through the SRZ of most trees, excavation using heavy machinery to develop a trench for footings and foundation is highly likely to have a negative impact on all trees, as this will result in structural root damage and removal.

To avoid this, it is recommended to choose a boundary material that can be installed with isolated footings spaced apart, rather than a sunken solid material that requires a trench. Vacuum excavation is a suitable method for removing soil between roots as it drastically reduces the risk of damage and most often allows for the placement of infrastructure between roots rather than having to remove them.

Additionally, as the canopies of many trees are fairly well spread, and some are near the approximate height of an average boundary wall, care must be taken to prevent injury to branches. It is recommended that following the finalised design, a second minor assessment be undertaken to determine which, if any, branches can be removed where it may benefit the processes of development and prevent damage.



Tree Id	TPZ (m)	SRZ (m)	Canopy Spread (m)
1	5.28	2.42	12
2	6.72	3.09	16
3	4.58	2.31	10
4	6.1	2.65	8
5	4.5	2.34	8
6	4.29	2.23	6
7	5.21	2.44	10
8	5.76	2.69	11
9	4.64	2.31	8
10	5.28	2.69	9

9.0 Recommendations

9.1 Design Considerations

- Works beneath the canopy dripline must be careful to not cause any damage to tree branches or the trunk.
- Works within the TPZ must have an arborist consultant onsite throughout the duration of this encroachment to undertake any root pruning that may be required.
- Boundary wall footings and foundation materials and methods of instalment must not require trenching.
- Vacuum excavation for the installation of chosen footings is required to navigate around root systems, only the arborist consultant can undertake the pruning of roots to make room for materials.
- Wall to the accessibility slope should be positioned or of a low enough height to ensure no pruning for clearance is required of tree 2.

9.2 Arborist Works Recommended

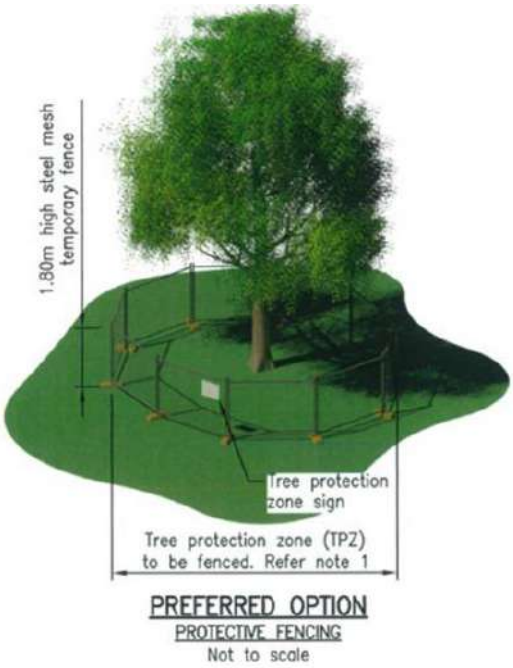
Tree Id	Latin Name	Tree Height (m)	Work Requirements	Observation Comments
3	*Jacaranda mimosifolia*	10	Remove all deadwood over 25mm in diameter	Deadwood in canopy due to phototropism from adjacent verge tree
4	*Araucaria columnaris*	17	Uplift canopy to 2m above ground level	Excellent specimen
5	*Lophostemon confertus*	8	Uplift canopy to 2m above ground level	

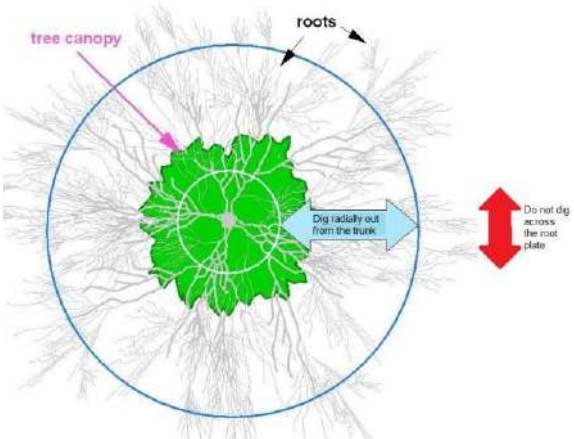
9.3 Tree Protection Data Summary

Tree Id	Latin Name	Health	Tree Height (m)	Canopy Spread (m)	DBH (cm)	Diameter at Root Flare (cm)	TPZ (m)	SRZ (m)
1	*Jacaranda mimosifolia*	Good	11	12	44	47.5	5.28	2.42
2	*Eucalyptus grandis*	Fair	18	16	56	85	6.72	3.09
3	*Jacaranda mimosifolia*	Good	10	10	38.2	42.5	4.58	2.31
4	*Araucaria columnaris*	Good	17	8	50.8	59	6.1	2.65
5	*Lophostemon confertus*	Fair	8	8	37.5	44	4.5	2.34
6	*Erythrina sykesii*	Fair	7	6	35.71	39	4.29	2.23
7	*Erythrina sykesii*	Fair	10	10	43.42	48.5	5.21	2.44
8	*Acmena smithii*	Fair	15	11	48	61	5.76	2.69
9	*Lophostemon confertus*	Fair	8	8	38.7	42.3	4.64	2.31
10	*Melaleuca lanceolata*	Fair	9	9	44	61	5.28	2.69

9.4 AS:4070: Tree Protection Requirements

- It is imperative that Tree Protection fencing is installed around all trees 2m from the trunk whenever works within the area (boundary/path development) is not carried out. Fencing must remain *in situ* for the duration of site works until completion.
- TPZ fencing and other measures must be fixed so that they cannot be moved either by accidental physical impact or other inadvertent means. The fencing should be 1.8m steel mesh style fencing.
- There should be no entry within any Tree Protection Fencing by any construction crew or other persons during the construction phase without authorisation and/or attendance of the site Arborist. The purpose of the TPZ is to be included as part of the site induction for <u>all</u> contractors and sub-contractors working on the site.
- An irrigation system should be installed to provide regular water to all trees on site. Most especially important for trees 2-10.
- There shall be no use of strip style excavation within the TPZ of any retained tree, e.g., for removal of topsoil, installation of boundary fencing, future foundations, installation of services, kerb/roadside guttering etc without identifying roots over 50mm in diameter and pruning them first.
- Methods of excavation encroaching the TPZ should be done so radially (pulling away from the tree) rather than laterally (across the root plate) to prevent taring and radiating fractures.





10.0 Glossary of Arboricultural Terminology

Abscission - The shedding of a leaf or other short-lived part of a woody plant, involving the formation of a corky layer across its base; in some tree species twigs can be shed in this way.

Abiotic - Pertaining to non-living agents, e.g., environmental factors.

Absorptive roots - non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients.

Adaptive growth - In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress.

Adaptive roots - The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading.

Adventitious shoots - Shoots that develop other than from apical, axillary, or dormant buds; see also 'epicormic'

Anchorage - The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree.

Axil - The place where a bud is borne between a leaf and its parent shoot.

Bacteria - Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms.

Bark - A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex, and periderm; occasionally applied only to the periderm or the phellem.

Basidiomycotina (Basidiomycetes) - One of the major taxonomic groups of fungi.

Bolling - A term sometimes used to describe pollard heads.

Bottle-butt - A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay.

Bracing - The use of rods or cables to restrain the movement between parts of a tree.

Branch:

- **Primary** - A first order branch arising from a trunk or stem
- **Lateral** - A second order branch, subordinate to a primary branch
- **Sub-lateral** - A third order branch, originating from lateral branch

Branch bark ridge - The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem.

Branch-collar - A visible swelling formed at the base of a branch.

Brown-rot - A type of wood decay in which cellulose is degraded, while lignin is only modified.

Buckling - An irreversible deformation of a structure subjected to a bending load.

Buttress zone - The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions.

Cambium - Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally.

Canker - A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria.

Canopy species - Tree species that mature to form a closed forest canopy.

Cleaning out - The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree.

Compartmentalisation - The chemical confinement of disease, decay, or other dysfunction within a trees tissue, due to passive and/or active defences operating at the boundaries of the affected region.

Compression fork - An acute angled fork that is mechanically optimised for the growth pressure that two or more adjacent stems exert on each other.

Compression strength - The ability of a material or structure to resist failure when subjected to compressive loading, measurable in trees with special drilling devices.

Compressive loading - Mechanical loading which exerts a positive pressure, the opposite to tensile loading.

Tree Protection Zone - Area from which access is prohibited for the duration of the project to prevent damage to a tree.

Crown/Canopy - The main foliage bearing section of the tree.

Crown lifting - The removal of limbs and small branches to a specified height above ground level.

Crown thinning - The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure.

Crown reduction/shaping - A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape.

Crown reduction/thinning - Reduction of the canopy volume by thinning to remove selected branches whilst preserving the natural tree shape.

Deadwood - Branch or stem wood bearing no live tissues.

Decurrent - A system of branching in which the crown is borne on a number of major widely spreading limbs of similar size.

Defect - In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment.

Delamination - The separation of wood layers along their length, visible as longitudinal splitting.

Dieback - The death of parts of a woody plant, starting at shoot-tips or root-tips.

Disease - A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused pathogens.

Distal - In the direction away from the main body of a tree or subject organism (cf. proximal)

Dominance - In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also, the tendency of a tree to maintain a taller crown than its neighbours.

Dormant bud - An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so.

Dysfunction - In woody tissues, the loss of physiological function, especially water conduction, in sapwood.

DBH (Diameter at Breast Height) - Stem diameter measured at a height of 1.4 metres or the nearest measurable point. Where measurement at a height of 1.4 metres is not possible, another height may be specified.

Endophytes - Micro-organisms that live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed.

Epicormic shoot - A shoot having developed from a dormant or adventitious bud and not having developed from a first-year shoot.

Excrescence - Any abnormal outgrowth on the surface of tree or other organism.

Excurrent - In trees, a system of branching in which there is a well-defined central main stem, bearing branches which are limited in their length, diameter, and secondary branching (cf. decurrent).

Fastigiate - Having upright, often clustered branches.

Flush cut - A pruning cut which removes part of the branch bark ridge and or branch-collar.

Girdling root - A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue.

Habit - The overall growth characteristics, shape of the tree and branch structure.

Haloing - Removing or pruning trees from around the crown of another (usually mature or post-mature) tree to prevent it becoming supressed.

Hazard beam - An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth, prone to longitudinal splitting.

Heartwood/false-heartwood - The dead central wood that has become dysfunctional as part of the aging processes and being distinct from the sapwood.

Heave - The lifting of pavements and other structures by root diameter expansion; also, the lifting of one side of a wind-rocked root-plate.

High canopy tree species - Tree species having potential to contribute to the closed canopy of a mature forest.

Incipient failure - In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part.

Included bark (ingrown bark) - Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact.

Infection - The establishment of a parasitic micro-organism in the tissues of a tree or other organism.

Internode - The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches.

Lever arm - A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or individual branch.

Lignin - The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification.

Lions tailing - When a branch of a tree that has few if any side branches except at its end and is thus liable to snap due to end-loading.

Loading - A mechanical term describing the force acting on a structure from a particular source, e.g., the weight of the structure itself or wind pressure.

Longitudinal - Along the length (of a stem, root, or branch).

Lopping - A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting

Minor deadwood - Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target.

Mulch - Material laid down over the rooting area of plants to help conserve moisture; mulch may consist of organic matter, or artificial material.

Mycelium - The body of a fungus, consisting of branched filaments (hyphae).

Occlusion - The process whereby a wound is progressively closed by the formation of new wood and bark around it.

Pathogen - A micro-organism which causes disease in another organism.

Photosynthesis - The process whereby plants use light energy to split hydrogen from water molecules and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products.

Phytotoxic - Toxic to plants.

Pollarding - The removal of the tree canopy, back to the stem or primary branches, usually to a point just outside that of the previous cutting.

Primary branch - A major branch, generally having a basal diameter greater than 0.25 x stem diameter.

Probability - A statistical measure of the likelihood that a particular event might occur.

Pruning - The removal or cutting back tree parts to growth points.

Rams-horn - In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross section.

Reactive Growth/Reaction Wood - Production of woody tissue in response to altered mechanical or external loading.

Residual wall - The amount of non-decayed wood remaining following decay of internal wood

Rib - A ridge of wood that has usually developed because of locally increased mechanical loading. Often associated with internal cracking in the wood of the stem, branch, or root.

Ringbarking (girdling) - The removal of a ring of bark and phloem around the circumference of a stem or branch, normally resulting in an inability to transport photosynthetic assimilates above or below the area of damage.

Ripewood - The older central wood of those tree species in which sapwood gradually ages without being converted to heartwood.

Root-collar - The transitional area between the stem/s and roots.

Root zone - Area of soils containing absorptive roots of the tree/s described. The Primary root zone is that which we consider of primary importance to the physiological well-being of the tree.

Sapwood - Living xylem tissues.

Selective delignification - A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose.

Shedding - In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots, and bark scales.

Shrub species - Woody perennial species forming the lowest level of woody plants in a forest or garden and not normally considered to be trees.

Simultaneous white rot - A kind of wood decay in which lignin and cellulose are degraded at about the same rate.

Soft-rot - A kind of wood decay in which a fungus degrades cellulose within the cells,

Spores - Propagules of fungi; most spores are microscopic and dispersed in air or water.

Sporophore - The spore bearing structure of fungi.

Stem/s - Principle above-ground structural component(s) of a tree that supports its branches.

Stress - In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition, or extremes of temperature: In mechanics, the application of an external force to an object.

Stringy white-rot - The kind of wood decay produced by selective delignification.

Structural roots - Roots, generally having a diameter greater than 50 millimetres, and contributing significantly to the structural support and stability of the tree.

Structural root zone (ZRZ) - The zone of the root plate most likely to contain roots that are critical for anchorage and the stability of the tree.

Subsidence - In relation to soil or structures resting in or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots.

Subsidence - In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight.

Taper - In stems and branches, the degree of change in girth along a given length.

Targets - In tree risk assessment persons or property or other things of value which might be harmed or damaged by falling parts of a tree

Topping/ Lopping - In arboriculture, the removal of the crown of a tree, or of a major proportion of it.

Torsional stress - Mechanical stress applied by a twisting force.

Translocation - Plant physiology, the movement of water and dissolved materials through the body of the plant.

Transpiration - The evaporation of moisture from the surface of a plant, especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem cells.

Tree Protection Zone (TRZ) - This is an area left around a tree to ensure protection of the above and below ground parts of the tree during construction works. It will usually include the SRZ and is usually recommended to be fenced off for the period of the works.

Understorey - This layer consists of younger individuals of the dominant trees, together with smaller trees and shrubs which are adapted to grow under lower light conditions.

Understorey tree species - Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a forest or garden.

Vascular wilt - A type of plant disease in which water-conducting cells become dysfunctional.

Vessels - Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally, not present in coniferous trees.

Vigour - The expression of carbohydrate expenditure to growth (in trees).

Vitality - A measure of physiological condition.

White-rot - A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded.

Wind exposure - The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity.

Windthrow - The blowing over of a tree at its roots.

Woundwood - Wood with atypical anatomical features, formed in the vicinity of a wound.

11.0 References

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12.0 Appendices

12.1 Appendix 1 - TPZ Sign

12.2 Appendix 2 - Soil compaction

Due to the relationship between soil profiles and tree physiology, soil compaction is recognised as a primary cause for tree health decline.

Soil compaction is common in isolated planting areas such as: narrow medians, raised planters & small tree pits located in areas surrounded by concrete, bitumen or other impermeable surfaces. It is often caused by: heavy vehicular traffic during construction, frequent foot traffic, erosion and dense garden beds causing further restriction & competition by other vegetation (i.e., weeds, grass & over companion planting). These conditions cause a weak soil profile which will continue to require review and maintenance.

Soil compaction and Impermeable surfaces over the root plate of trees will:

- Reduce the physical space available for tree root movement.
- Reduce aeration by compressing the macropores in the soil. This in turn restricts or inhibits metabolic functions.
- Prevents water from reaching the soil, reducing water availability.
- Inhibits organic detritus processes; therefore, reducing nutritional composition and microbe abundance & diversity in the soil.
- The compression of macropores, can cause poor drainage leading to water logging and root rot.
- Soil can become hygroscopic and hydrophobic.
- Heavy and repeated surface activity can damage and break roots.
- Lead to property or infrastructure damage as roots seek path of least resistance.

An industry standard for the measurement of soil compaction for woody plant growth (i.e., Dicotyledon trees) is by resistance to penetration (psi) as determined with a penetrometer. A psi less than 90 is indicative of soil with few root growth impediments, with very minor constraints. Non-compacted soil should not exceed 250psi, reaching this resistance at a depth of 50cm.

While critical soil compaction limits can vary among species, research suggests the critical soil strength limit for trees is approximately 300psi. This level of compaction reduces the root growth by 60%.

Soil compaction can be alleviated by many ways. The level of intrusion and financial burden is dependent on the severity of the compaction.

Soil Compaction Limits for Trees (Dicotyledons)

Penetration Resitance (psi)	Acceptability	Root Response
1-100	Good	Few root growth impediments
100-200	Fair	Root penetration reduced to 80%
300	Average Action recommended	Soil compaction limit. Root penetration reduced to 60% strength
300-450	Poor Action Required	Root movement less than 5% strength
500+	Very Poor Action Required	Root Movement inhibited
700+	Unacceptable Intervention Required	Roots likley to cause damage to bitumen and concrete

12.3 Appendix 3 – Water recommendations

Recommended Watering Regime Small Trees		
Time period	**Volume**	**Frequency**
15 Oct to 1 May	200 L	every second day
2 May to 1 July	100 L	every second day
2 July to 15 Sept	50 L	every third day - do not water on days of heavy rain fall
16 Sept to 15 Oct	100L	Every second day

Watering Regime for medium Trees		
Time period	**Volume**	**Frequency**
15 Oct to 1 May	500 L	every second day
2 May to 1 July	250 L	every second day
2 July to 15 Sept	100 L	every third day - do not water on days of heavy rain fall
16 Sept to 15 Oct	250	Every second day

Watering Regime for Large Trees		
Time period	**Volume**	**Frequency**
15 Oct to 1 May	1000 L	Every day
2 May to 1 July	500 L	Every second day
2 July to 15 Sept	200 L	Every second day - do not water on days of heavy rain fall
16 Sept to 15 Oct	500	Every second day

Small tree – up to 6m in height

Medium Tree – up to 15m in height

Large tree – over 15m in height

13.0 Disclaimer and Limitations

a. References in this report to the "Consultant" means listed on the cover page as an employee of Westworks Consultancy. References in this report to Westworks Consultancy means Westworks Group Pty Ltd as trustee for Ussheridan Trust trading as Westworks Consultancy (ACN 156 131 010 ABN 23 100 208 057).

b. In this report a reference to a group of persons includes a reference to all of them collectively, any two or more collectively and each of them individually.

c. The releases and limitations in this report apply to the Arborist, Westworks Consultancy and any employees, directors, contractors, and agents of the Arborist and/or Westworks Consultancy.

d. This report only covers identifiable defects present at the time of inspection. The Arborist and Westworks Consultancy accept no responsibility and cannot be held liable for any structural defect or unforeseen event/situation that may occur after the time of inspection.

e. The Arborist and Westworks Consultancy cannot and do not guarantee trees contained within this report will be structurally sound under all circumstances and cannot and do not guarantee that the recommendations made will categorically result in the tree being made "safe." Unless specifically mentioned this report will only be concerned with above ground inspections, that will be undertaken visually from ground level.

f. Trees are living organisms and as such cannot be classified as "safe" under any circumstances.

g. Failure events can occur for any number of reasons at any time and cannot always reasonably be foreseen, as any number of circumstances can come about at any time before or after an inspection that the Arborist and Westworks Consultancy may not be aware of.

h. All recommendations are made based on what can be reasonably identified at the time of inspection therefore the author accepts no liability for any recommendations made.

i. Care has been taken to obtain all information from reliable sources. All data has been verified or as much as possible; however, the Arborist and Westworks Consultancy can neither guarantee nor be responsible for the accuracy of information provided by others.

j. Booking of re-assessment after the prescribed period is the responsibility of the land manager/owner only. The Arborist and Westworks Consultancy are not responsible for providing reminders or notification that re assessment may be due and will not be held responsible to reinspect the listed trees until requested.

k. The Arborist and Westworks Consultancy make no express warranties under this report.

l. Except as the report specifically states, or as contained in any express warranty provided in relation to any goods or services provided or to be provided, the report does not include by implication any other term, condition or warranty in respect of the quality, merchantability, acceptability, fitness for purpose, condition, description, assembly, manufacture, design or performance of the goods or services or any contractual remedy for their failure.

m. If the client is a consumer nothing in the Repot restricts, limits, or modifies the client's rights or remedies against Westworks Consultancy for failure of a statutory guarantee under the ACL save to the extent lawfully permissible.

n. To the greatest extent permitted under law the Arborist and Westworks Consultancy are not liable to the client or any third party in any way under or in connection with the Report or in connection with the goods or services provided by them to the client or any third party.

o. To the greatest extent permitted under law the Arborist and Westworks Consultancy are not liable for any indirect or consequential losses or expenses suffered by the client or any third party, howsoever caused, including but not limited to loss of turnover, profits, business or goodwill or any liability to any other party.

p. The client expressly acknowledges and agrees that:

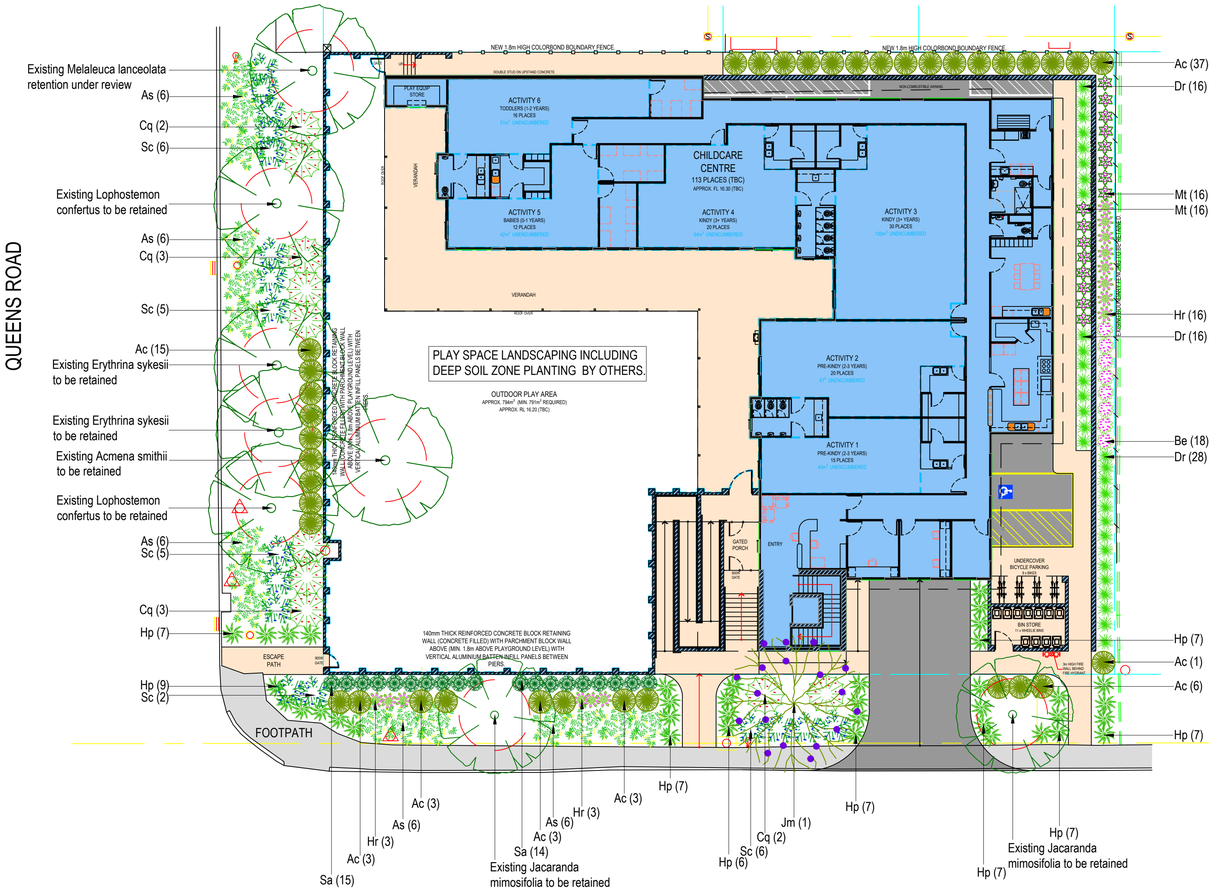
   i. it has not relied upon, any service involving skill and judgement, or on any advice, recommendation, information, or assistance given by the Arborist or Westworks Consultancy, their agents, contractors, or employees in relation to any goods or services or their use or purpose.

   ii. it has not made known, whether expressly or by implication, to the Arborist and Westworks Consultancy any purpose for which it requires the goods or services and it has the sole responsibility of satisfying itself that any goods or services as suitable for the use of the client.

   iii. nothing in this Report is to be interpreted as excluding, restricting, or modifying the application of any non-excludable State or Federal legislation applicable to the sale of goods or supply of service.

   iv. Any reinspection is the responsibility of the tree owner to arrange as required.

Appendix E – Landscaping Concept Plan



ST MICHAEL TERRACE

PLANT SCHEDULE AND SYMBOL LEGEND

Code	Symbol	Botanic Name	Mature height x width	Minimum installation size	Planting density m²	Number
TREE VARIETY						
Jm		Jacaranda mimosifolia	12m x 8m	90 Litre	Per symbol	1
SHRUB VARIETIES						
Ac		Adenanthos cygnorum	1.5m x 1.5m	17.5cm	1	56
Be		Beaufortia elegans	1m x 1m	14cm	2	18
Cq		Calothamnus quadrifidus	2.5m x 2.5m	14cm	Per symbol	10
Hr		Hypocalymma robustum	1m x 1m	14cm	2	22
Mt		Melaleuca trichophylla	70cm x 1m	17.5cm	2	32
Sa		Syzygium australe 'Backyard Bliss'	3-4m x 1m	5 Litre	1.5	29
GRASS VARIETIES						
Dr		Dianella revoluta	1m x 1m	14cm	2	60
GROUND COVER VARIETIES						
As		Acacia saligna prostrate	30cm x 3m	13cm	.5	30
Hp		Hemiandra pungens alba	30cm x 1.5m	13cm	1	64
Sc		Scaevola crassifolia prostrate	50cm x 2m	13cm	.5	24
TOTAL PLANTS						**346**

EXISTING TREE LEGEND

Existing site trees to be retained (8). Species and structural root zones (red dashed circles) as indicated.

TREE VARIETY

SHRUB VARIETIES

Adenanthos cygnorum | Beaufortia elegans | Calothamnus quadrifidus | Hypocalymma robustum | Melaleuca trichophylla | Syzygium australe 'Backyard Bliss'

GRASS VARIETY

Dianella revoluta

GROUND COVER VARIETIES

Acacia saligna prostrate | Hemiandra pungens alba | Scaevola crassifolia prostrate

INSTALLATION SPECIFICATIONS

1. TREE AND PLANT MATERIAL SUPPLY AND PLANTING

1.1 PLANT MATERIAL

- ALL PLANT STOCK SUPPLIED BY CONTRACTOR SHALL BE OF THE SPECIES AND SIZES AS THOSE ON THE PLANT SCHEDULE. SHOULD THERE BE ANY DIFFICULTIES IN SOURCING PLANTS, THE CONTRACTOR SHALL RECOMMEND SIMILAR SUITABLE SUBSTITUTE SPECIES AND/OR SIZES TO THOSE SHOWN ON THE DRAWINGS. NO SUBSTITUTIONS SHALL TAKE PLACE WITHOUT WRITTEN APPROVAL BY THE SUPERINTENDENT.
- GREENLIFE MUST BE WELL KEPT: DELIVERED TO SITE ON DAY OF INSTALLATION, OUT OF FULL SUN, AWAY FROM ANIMALS AND PESTS AND ROOTS NOT ALLOWED TO DRY OUT AND SHALL:
  - BE TRUE TO SPECIES, SUBSPECIES AND VARIETY
  - BE IN FIRST CLASS CONDITION AND HEALTHY
  - BE OF GOOD FORM CONSISTENT WITH SPECIES AND VARIETY
  - AND BE PLANTED AS PER THE INSTRUCTIONS BELOW.

1.2. GENERAL PLANTING INSTRUCTIONS

- SETTING OUT OF WORKS - WHERE UNDERGROUND SERVICES, MANHOLES, CABLE PITS, KERBING, PAVING, EXISTING TREE ROOTS AND OTHER OBSTRUCTIONS OCCUR, PLANT CLEAR OF SUCH SERVICES AND OBSTRUCTIONS AND PROTECT THEM FROM DAMAGE BY MACHINES AND EQUIPMENT.
- ALL PLANTS ADJACENT TO FOOTPATHS, SERVICES AND THE LIKE TO BE POSITIONED WITH APPROPRIATE OFFSET TO SIZE TO ENSURE PLANTS DO NOT GROW OVER FOOTPATHS AND SERVICES AT MATURE SIZE (MIMIMUM 500MM),
- REMOVE ALL PLANTS FROM THEIR CONTAINERS IN SUCH A MANNER AS TO DO AS LITTLE DISTURBANCE AS POSSIBLE TO THE ROOTS. WHERE NECESSARY, GENTLY TEASE OUT ROOTBALLS BEFORE PLANTING. PLACE TREES, SHRUBS AND PLANTS IN HOLES IN AN UPRIGHT POSITION AND BACKFILL LEVEL WITH TOP OF ROOTBALL. COMPACT SOIL BY HAND.
- REFER DETAILS 'TREE PLANTING' AND 'SHRUB PLANTING DETAIL'.
- A ROOT BARRIER SHALL BE INSTALLED FOR NEW TREES.

1.3 SOIL CONDITIONER

- AFTER SITE WORKS AND BEFORE PLANTING SUPPLY AND INSTALL SOIL CONDITIONER TO ALL PLANTING AREAS.
- PRIOR TO PLACEMENT ENSURE ALL BASE MATERIAL IS CLEAN, FREE DRAINING AND FREE OF ALL BUILDER'S RUBBLE, RUBBISH, DELETERIOUS MATERIAL AND CONTAMINATION. ALL AREAS CONTAMINATED BY THE BUILDER OR OTHERS SHALL BE REMOVED AND REPLACE WITH CLEAN FILL SAND TO THE APPROVAL OF THE SUPERINTENDENT.
- PLACE SOIL CONDITIONER TO A DEPTH OF 15MM OVER THE FULL EXTENT OF AREAS TO BE CONDITIONED. ROTARY-HOE OR SPADE DIG WHERE NECESSARY SOIL CONDITIONER INTO EXISTING SITE SOIL TO A DEPTH OF 80MM TO PRODUCE A FULLY HOMOGENEOUS MIX. REMOVE ALL RUBBLE OR OTHER EXTRANEOUS AND DELETERIOUS MATTER EXPOSED AS A RESULT OF CULTIVATION, INCLUDING ANY BASE COURSE MATERIAL.
- SOIL CONDITIONER SHALL COMPLY WITH AS4454 COMPOSTS, SOIL CONDITIONERS AND MULCHES.

1.4 FERTILISING

- AFTER PLANTING AND AT TIME OF BACK FILLING ALL PLANTS ARE TO RECEIVE APPROVED PROPRIETY ITEM OF EIGHT TO NINE MONTH SLOW-RELEASE FERTILISER SUITABLE FOR AUSTRALIAN NATIVE PLANTS.
- FERTILISER TO BE APPLIED IN BACKFILL (BELOW GROUND) DURING PLANTING AT THE MANUFACTURERS' RECOMMENDED RATE FOR THE RELATIVE PLANT SIZE, AND AT A MINIMUM RATE AS FOLLOWS:
  - 90 LITRE POT SIZE PLANTS TO HAVE 100 GRAMS
  - 13CM - 17.5CM POT SIZE PLANTS TO HAVE TEN GRAMS

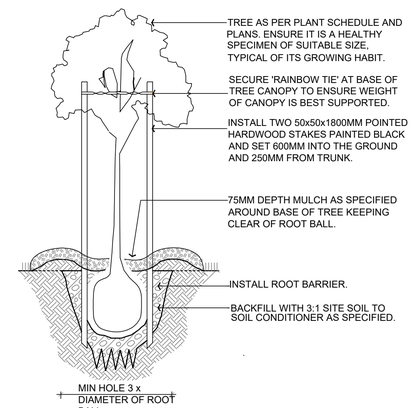
2. MULCH

- ALL MULCH SHALL MEET AUSTRALIAN STANDARD 4454-2012.
- SITE MULCH SHALL BE CHUNKY PINE BARK WOOD CHIPS APPLIED TO A DEPTH OF 75MM.
- MULCH IS TO BE COMPLETELY FREE OF ALL NOXIOUS WEEDS, SEEDS AND FUNGUS, INSECT PESTS AND OTHER DELETERIOUS MATERIAL.
- ALL GARDEN BEDS TO BE MULCHED TO A MINIMUM DEPTH OF 75MM, KEEPING MULCH CLEAR OF PLANT STEMS.
- TIDY AND GRADE MULCH AFTER APPLICATION, FINISHING 20MM BELOW SURROUNDING HARD SURFACES.

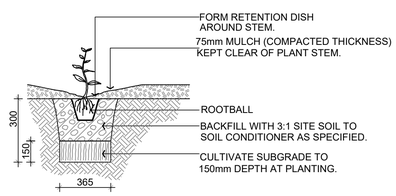
3. IRRIGATION

- ALL GARDEN BEDS TO BE IRRIGATED. INSTALL A SUB-MULCH DRIP SYSTEM FOR ALL GARDEN BEDS AND INDIVIDUAL BUBBLERS FOR NEW TREE.
- CONTROLLER TO BE AUTOMATIC SYSTEM WITH RAIN SENSOR. LOCATION TO BE CONFIRMED ON SITE.
- THE CONTRACTOR IS RESPONSIBLE FOR LAYOUT DESIGN AND INSTALLATION OF IRRIGATION SYSTEM.
- AT TIME OF COMPLETION THE IRRIGATION SYSTEM SHALL BE FULLY AUTOMATED, WORKING EFFICIENTLY AND EFFECTIVELY AND WATERING TIMES PROGRAMMED.

TYPICAL DRAWINGS



1 TREE PLANTING DETAIL
TYPICAL SECTION NOT TO SCALE



2 POT PLANTING DETAIL
TYPICAL SECTION NOT TO SCALE

THIS PLAN MUST BE PRINTED IN BEST QUALITY COLOUR PRINT

URBAN Retreat GARDEN DESIGN

revision/issue	description	drawn	checked	date
A	DEVELOPMENT APPLICATION	AC	AC	02.05.2025

project: PROPOSED CHILDCARE CENTRE
location: LOTS 143 (34) & 144 (36) ST MICHAEL TERRACE MOUNT PLEASANT
description: LANDSCAPE PLAN

URBAN RETREAT GARDEN DESIGN
COMMERCIAL AND RESIDENTIAL LANDSCAPE DESIGN SERVICES
www.urbanretreatgardens.com.au
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M:0438 926 313

scale	project no	dwg no	rev
1:200 @ A1	23271	L-01	00

Appendix F – Waste Management Plan

Urbii

Reduce. Reuse. Recycle

34-36 St Michael Terrace, Mount Pleasant
Proposed Child Care Centre

Waste Management Plan

Prepared for:
Carcione Nominees Pty Ltd

June 2025

34-36 St Michael Terrace, Mount Pleasant

Prepared for: Carcione Nominees Pty Ltd
Prepared by: Paul Ghantous
Date: 10 June 2025
Project number: U24.177

Version control

Version No.	Date	Prepared by	Revision description	Issued to
U24.177.r02	21/04/25	PG	DRAFT	Element
U24.177.r02a	10/06/25	PG	FINAL	Element

Scan me

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1 Introduction

This Waste Management Plan has been prepared by Urbii on behalf of Carcione Nominees Pty Ltd with regards to the proposed child care centre, located at 34-36 St Michael Terrace, Mount Pleasant.

The subject site is situated on the north-west corner of St Michael Terrace and Queens Road, as shown in Figure 1. The site is presently vacant and is surrounded by a mix of residential, education and commercial land uses.

It is proposed to develop the site into a child care centre catering for up to 113 children and 29 staff.

The key issues that will be addressed in this WMP include calculation of the waste generation of the site, assessment of waste storage provisions and documentation of the waste collection arrangements.

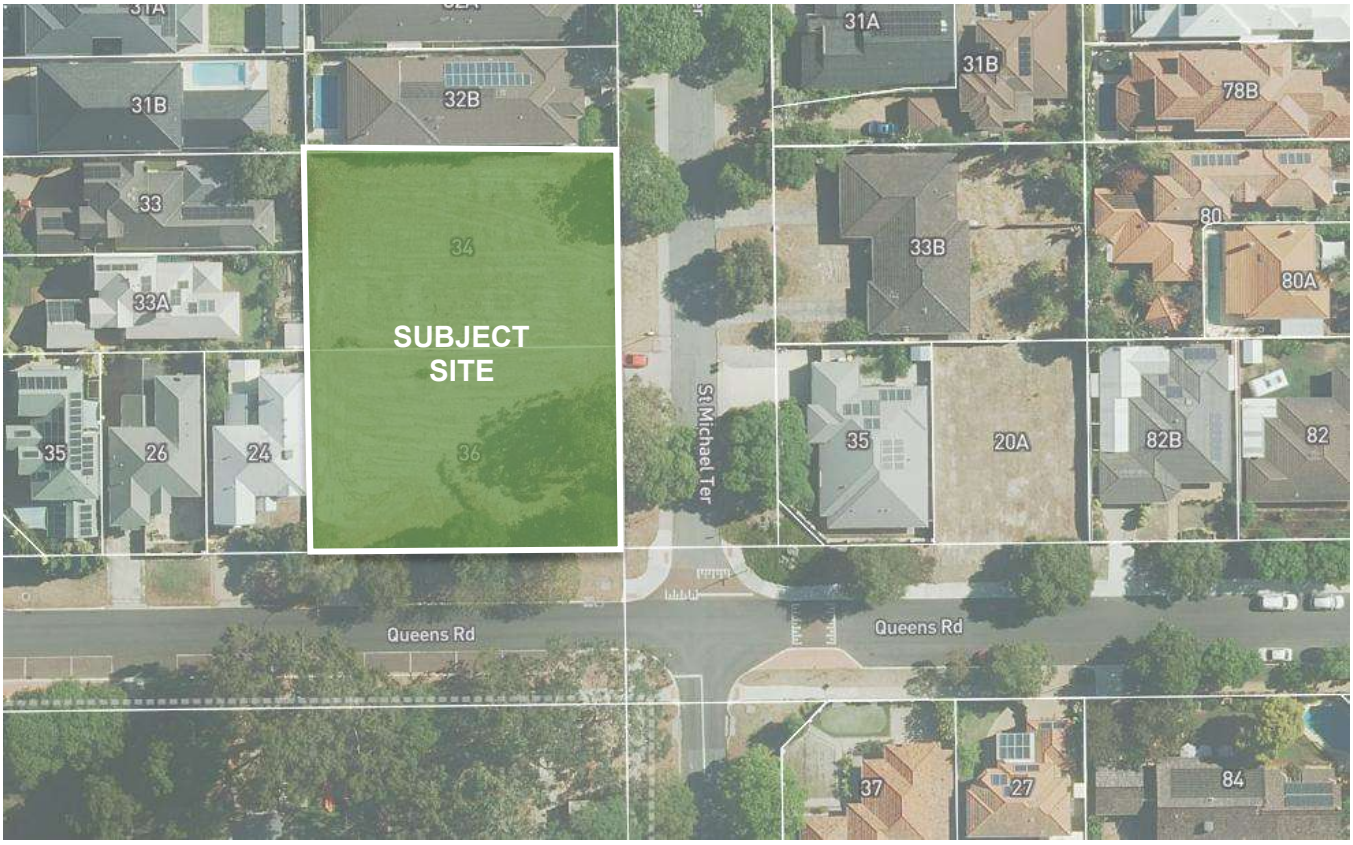


Figure 1: Subject site

2 Objectives

The objectives of this WMP are adapted from WALGA:

- Ensure that the long-term waste management needs for the development are met in an efficient and sustainable manner.
- Minimise the impact of waste services and facilities on the streetscape and surrounds, in relation to both the footpath/public realm and the frontage of the development.
- Reduce the impact of waste collection services and facilities on the amenity of the locality particularly in terms of noise and odour.
- Maximise safety for both waste collection staff and the public.
- Minimise traffic and footpath obstruction.

3 Referenced documents

The documents referenced in preparing this WMP may include, but are not limited to:

- City of Melbourne *Guidelines for Waste Management Plans* 2021;
- City of Perth *Waste Guidelines for all Developments* 2019;
- WALGA *Multiple Dwelling Waste Management Plan Guidelines*;
- WALGA *Subdivision Waste Management Plan Guidelines*; and,
- Waste Authority WA *Waste Avoidance and Resource Recovery Strategy for 2030*.

4 Guiding concepts

Urbii adopts the guiding concepts of the State's Waste Strategy and encourages these concepts to be considered in all developments to the furthest extent feasible.

4.1 Waste hierarchy

The *Waste Avoidance and Resource Recovery Strategy 2030* applies the waste hierarchy (Figure 2), which is a widely accepted decision-making tool. The waste hierarchy ranks waste management options in order of their general environmental desirability. Waste avoidance is the most preferred option in the hierarchy.

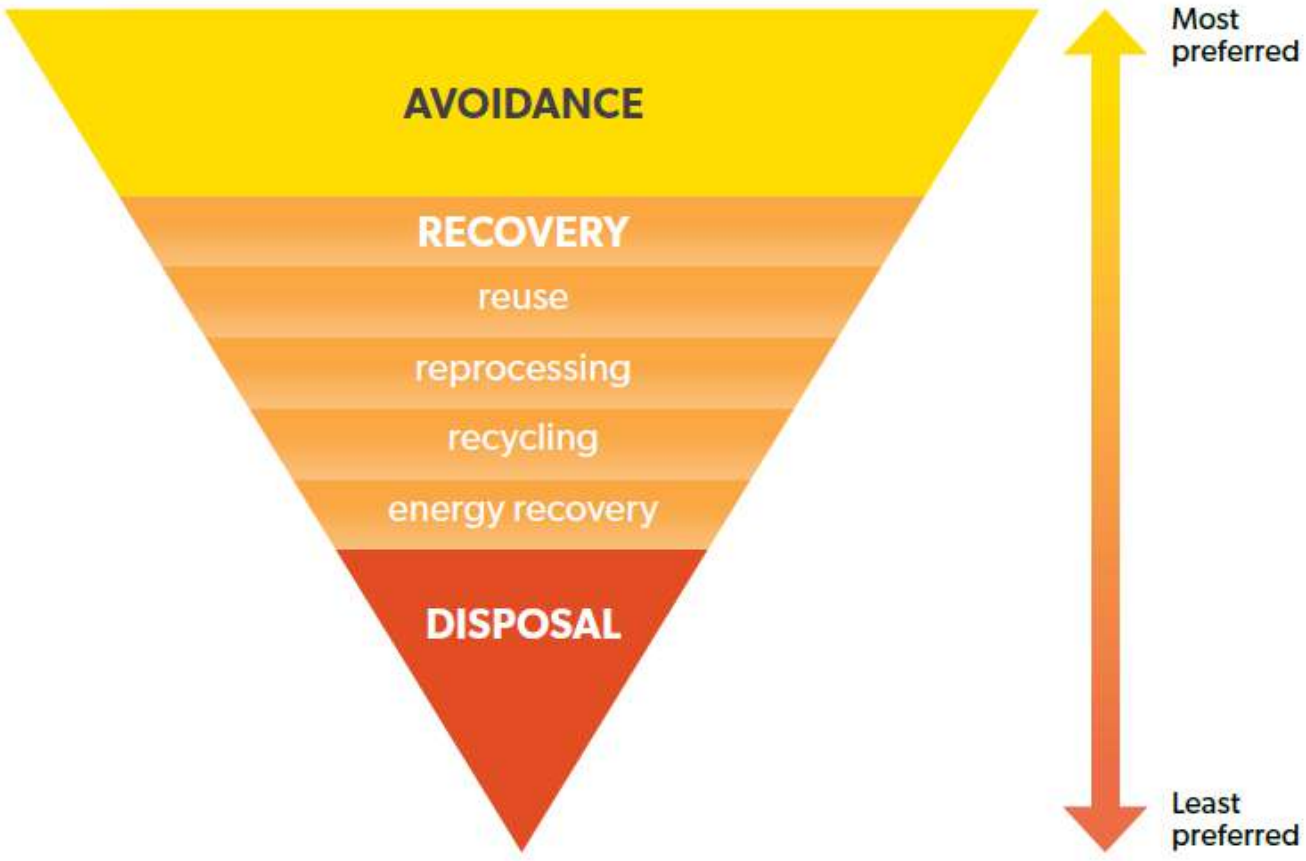


Figure 2: Waste hierarchy

Source: Waste Authority WA *Waste Avoidance and Resource Recovery Strategy for 2030.*

Resource recovery options recover value from materials, thereby offsetting the environmental impacts of extracting and processing raw materials. Energy recovery is the least preferred recovery option. Disposal is the least preferred option. Disposal generally recovers the least value from materials and delivers the least environmental benefit.

4.2 Circular economy

A circular economy (Figure 3) makes use of established sustainability concepts, including life cycle thinking and resource efficiency. A circular economy should consider the flow of both materials and energy. It moves away from the linear 'take, make, use and dispose' model, to one which keeps materials and energy circulating in the economy for as long as possible.

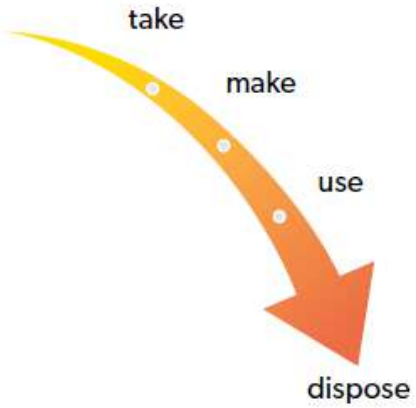
Current approach	Circular economy
	
Linear flow of materials – 'take, make, use and dispose' model.	Circular flow of materials – materials sorted and retained in the economy for as long as possible.
Limited use of renewable materials and energy.	Preference for renewable materials and energy.
Significant volumes of materials disposed of and lost to the economy. Loss of embodied materials, energy and water.	Materials recovered as high up the waste hierarchy as possible. Embodied materials, energy and water retained in the economy. Organic materials re-enter and regenerate the environment safely (for example, as compost).
Materials managed locally and globally.	Preference to manage materials locally to reduce the costs and impacts of transport, and to provide local employment and investment opportunities.
Economic value of materials, employment and investment not fully accounted for.	Economic value of materials, employment and investment accounted for.
Limited focus on life cycle thinking.	Products designed and manufactured to minimise environmental impact through whole of life.

Figure 3: Transitioning to a circular economy

5 Proposed development

The anticipated volume of general waste, and recyclables is based on the floor area of the development. For robust assessment, the full floor area of the building was adopted, which is around 843m^2.

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

6 Waste generation

6.1 Waste generation rates

The waste generation rates for general waste and recyclables are sourced from the *City of Melbourne Guidelines for Waste Management Plans 2021.* Waste generation rates are detailed in Table 1.

Table 1: Commercial waste generation rates

Land use	General waste generation rate	Recyclables generation rate
Child Care Centre	350L/100m^2 Floor area/week	350L/100m^2 Floor area/week

6.2 Waste generation calculations

The waste generation calculations are detailed in Appendix C. The estimated waste generation for the development is:

- General Waste: around 2,950L per week.
- Recyclables: around 2,950L per week.

7 Waste systems

7.1 Internal waste storage

Internal bins should be provided throughout the child care centre for separate disposal of general waste and recycling.

Internal bins will be emptied by cleaners at regular intervals throughout the week and transferred to the Bin Storage Area for disposal into the appropriate bins.

7.2 External bin storage areas

7.2.1 Bin size, quantity and colour

It is proposed to provide the following bins in a centralised bin store:

- 5 x 240L General waste (red lid bin).
- 5 x 240L Co-mingled recycling (yellow lid bin).

The number of bins required for the development is detailed in Appendix C.

7.2.2 Bin storage area size

As detailed in Table 2, each 240L bin has a footprint area of 0.43m^2. A 50mm gap is allowed between the bins to allow easy pull movement.

The proposed bin storage area size is sufficient to accommodate the required bins.

Table 2: Larger Mobile Garbage Bin (MGB) dimensions

Bin capacity	80L	120L	140L	240L	360L
Height (mm)	870	940	1065	1080	1100
Depth (mm)	530	560	540	735	885
Width (mm)	450	485	500	580	600
Approximate footprint (m^2)	0.24	0.27	0.27	0.43	0.53

Source: WALGA

7.2.3 Bin storage area design

Urbii has checked the proposed bin storage location and confirmed that required clearances are provided. A bin storage plan is included in Appendix B.

The following is a list of generic advice offered for consideration at subsequent detailed design stages of the project:

- **Size:** Ensure the size of the area set aside for the management of waste is sufficient to accommodate the number of bins required.
- **Ventilation and odour:** If covered, the design of the bin store will provide for adequate natural ventilation through ventilated doors or an alternative method which will be permanent, unobstructed natural ventilation openings direct to the external air, not less than one-twentieth i.e. 5% of the floor area.
- **Lighting:** Artificial light controlled by switches will be located near the bin store entrance.
- **Noise:** Bins will be collected from the waste collection presentation point outside of the peak operating hours of the development.
- **Aesthetics:** The bin store should be consistent with the overall aesthetics of the development.
- **Vermin:** Self-closing doors can be considered to eliminate access to vermin.
- **Washing bins and waste storage area:** The internal bin store will have bin-washing facilities including an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock and have floor drainage installed. Staff will be responsible for washing bins (or contracting a provider to wash bins) and for maintenance of their bin stores.

7.3 Access to bins

Waste and recycling storage facilities are in positions that:

- Permit easy, direct and convenient access for the users of the facility.
- Permit easy transfer of bins to the presentation point.
- Permit easy, direct and convenient access for collection service providers.
- Are well screened and do not reduce amenity.
- Are secure and provide protection against potential vandalism.
- Reduce potential noise pollution and disturbance of residents.
- Are close to building exits.

8 Waste collection

8.1 Waste vehicle types

Waste collection will be serviced through the City of Melville commercial waste collection service. Either a side or rear loader truck can be used due to the 240L bin size.

8.2 Waste collection frequency

Waste collection will be scheduled at a frequency of three times per week.

8.3 Waste collection method and presentation points

Bins are proposed to be wheeled out from the bin store to the St Michael Terrace verge for presentation on municipal waste collection days.

Collection by the City of Melville will be scheduled at a frequency of three days per week. A bin presentation plan is included in Appendix B.

8.4 Vehicle access and maneuvering

Waste collection will be facilitated on-street from the St Michael Terrace verge. Therefore, no internal waste truck access or circulation needs to be allowed for.

9 Additional waste requirements

9.1 Bulk waste

Bulk waste can be temporarily placed in a store room within the building until private arrangement for collection is made.

9.2 E-Waste

Storage space for E-waste will be accommodated within the building. E-waste will be disposed in a suitable manner, such as bulk drop-off to the tip or using public battery recycling boxes.

9.3 Garden organics

The site caretaker will manage garden organic waste. Garden waste can be placed in general waste bins if there is space or can be removed by trailer to be disposed offsite in a suitable location.

10 Waste management

Staff/cleaners will be responsible for:

- Cleaning their bin storage areas and facilities;
- Transferring waste stored internally to the consolidated bin storage area daily; and,
- Regularly cleaning their bins.

Staff should comply with the waste contractor's sorting requirements and only place permitted waste in each respective bin type. Waste that does not belong in any bin should be disposed of through private services or another appropriate method.

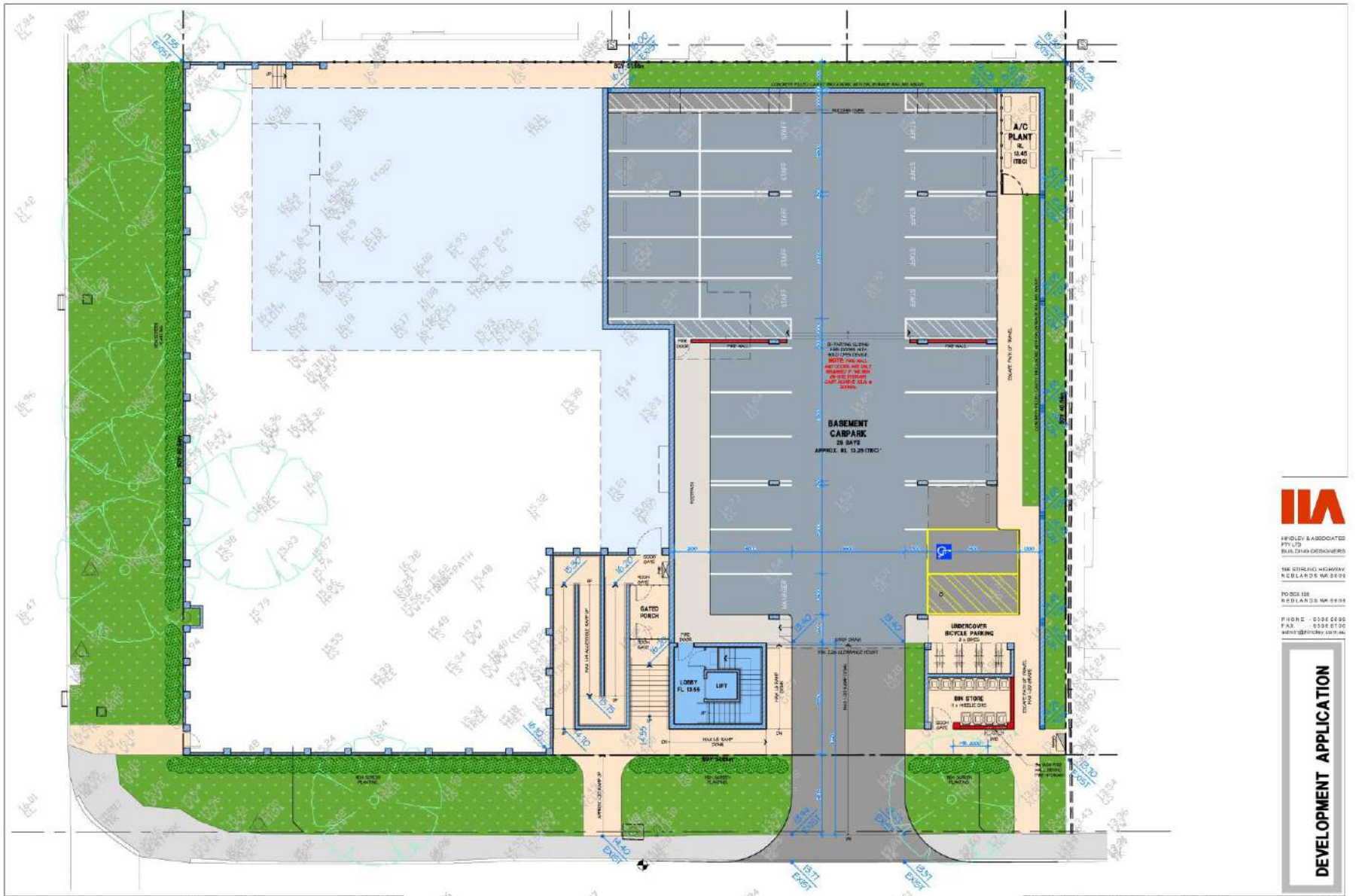
11 Conclusion

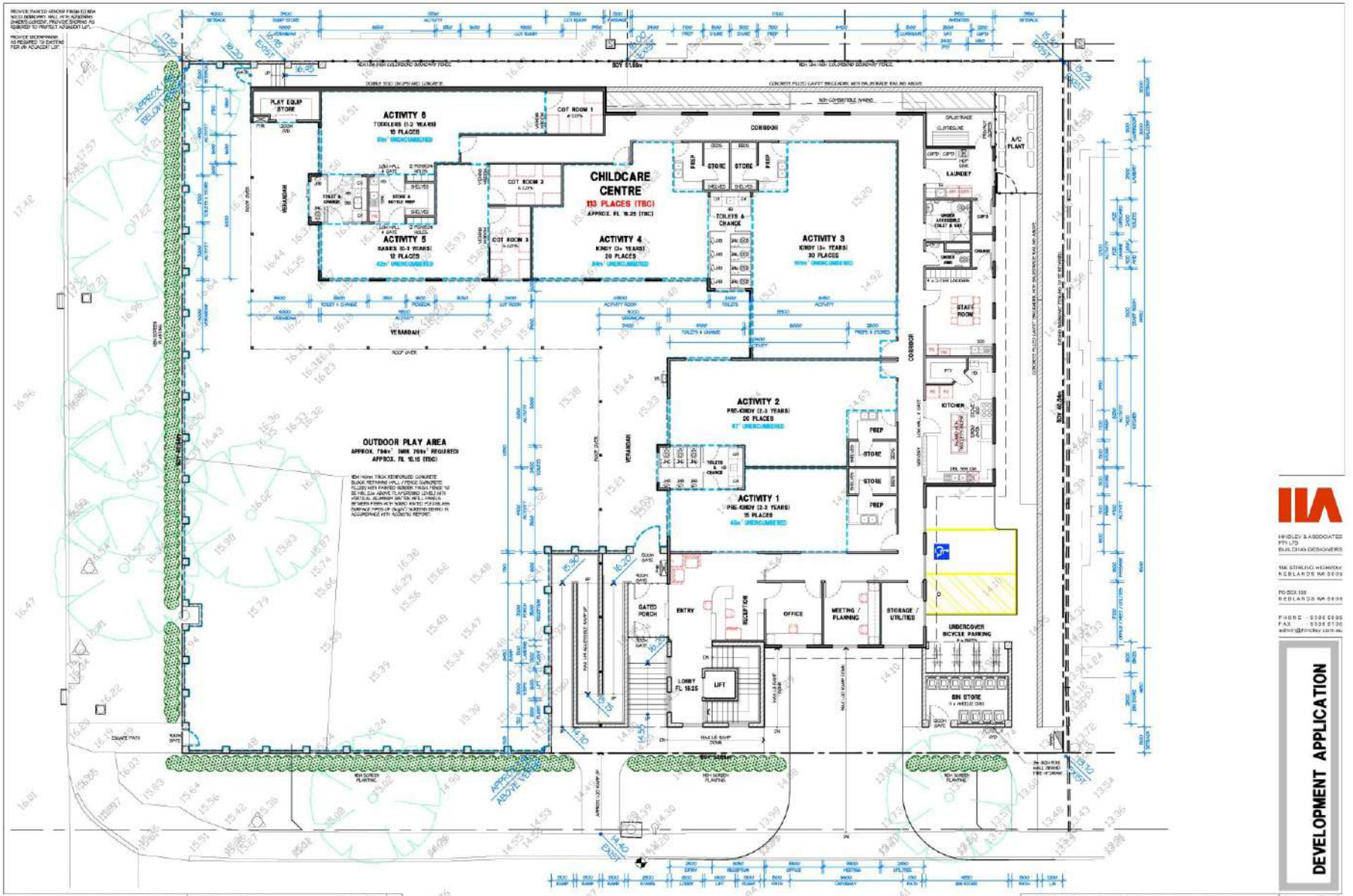
As demonstrated within this Waste Management Plan, the proposed development provides sufficient bin storage and adequate bins to service the site for general waste, recyclables and other waste.

Furthermore, the servicing of the bins by the City can be adequately achieved without having an adverse impact on the site and the local street network.

Appendices

Appendix A: Proposed development plans


A/C PLANT
RL 13.45 (TBC)
BASEMENT CARPARK
25 BAYS
APPROX. RL 13.25 (TBC)
GATED PORCH
LOBBY FL 13.55
LIFT
UNDERCOVER BICYCLE PARKING
BIN STORE
DEVELOPMENT APPLICATION
PROPOSED BASEMENT FLOOR PLAN
SCALE 1:100
A1 SHEET
PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD
DA03
B



HINDLEY & ASSOCIATES PTY LTD
BUILDING DESIGNERS

DEVELOPMENT APPLICATION

NO	DATE	REVISION	DRAWN	CHECK
A	15.05.25	ISSUED FOR DA	JUR	SOS
B	30.05.25	TOWN PLANNERS COMMENTS	JUR	SOS

HINDLEY & ASSOCIATES PL ATF HINDLEY TRUST
ACN No.: 008 369 004

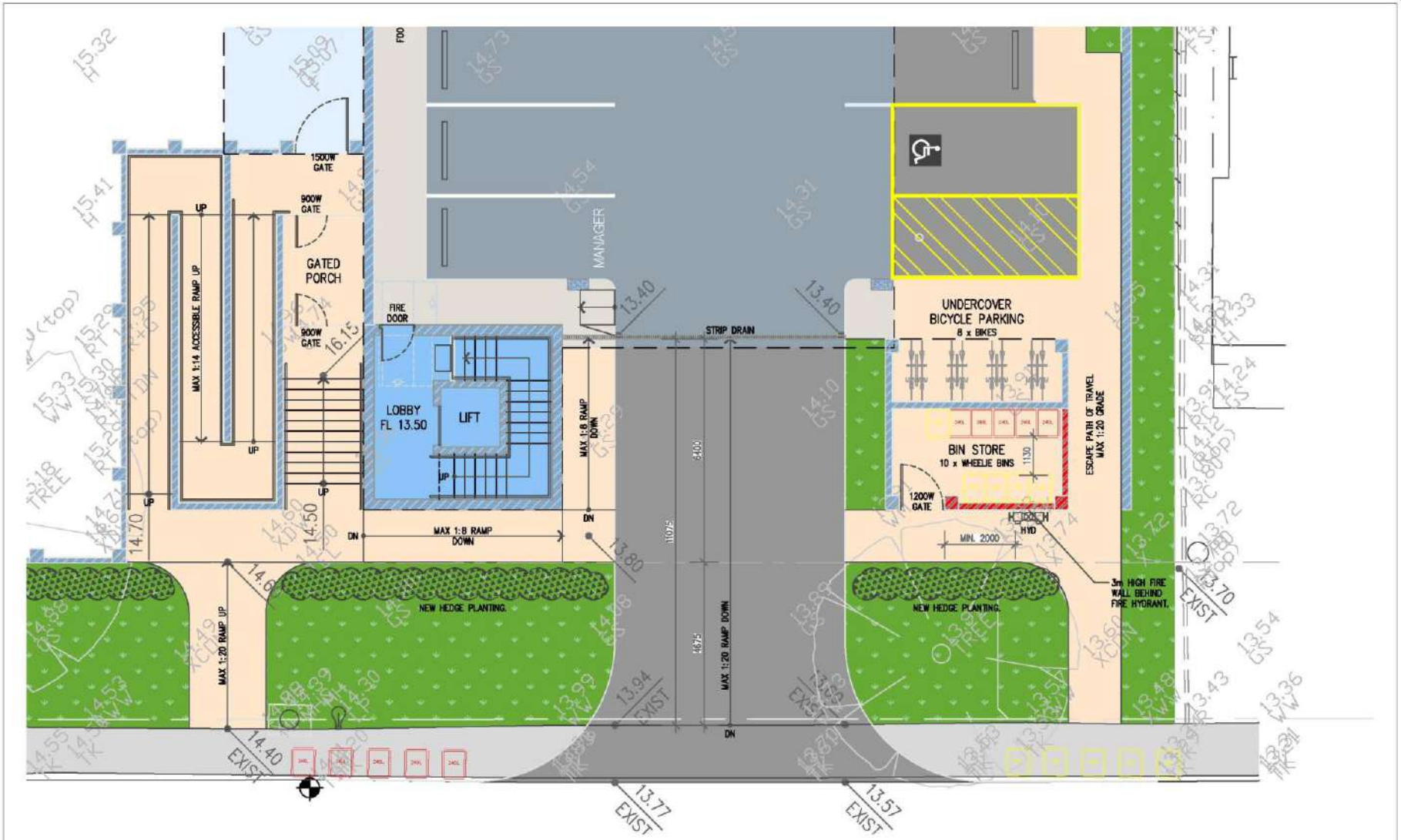
A1 SHEET

PROPOSED GROUND FLOOR PLAN
SCALE 1:100

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date - 28.11.24
Design - SOS
Drawn - SOS
Checked - SOS
Scale - 1:100
Job No. - 0942
Dwg - DA04
Rev - B

Appendix B: Bin storage and bin presentation plans



Revision notes:

Rev:	Date:	Notes:	
1	21/04/2025	5 x 240L General Waste Bins 5 x 240L Recycling Bins	- Collected 3 x per week. - Collected 3 x per week.

Drawn by: Paul Ghantous

Client: Cancana Nominees Pty Ltd

Project: U24.177 - 34-36 St Michael Terrace, Mount Pleasant
Proposed Child Care Centre

Drawing Title: Bin store layout and access plan
240L General Waste and 240L Recycling Bins

Date: 21/04/2025

Scale@A3: 1:100

Revision: sk01

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Sustainable Transport. Safe Solutions

Appendix C: Waste calculations

Table 3: Weekly waste generation, bin types and collection frequency

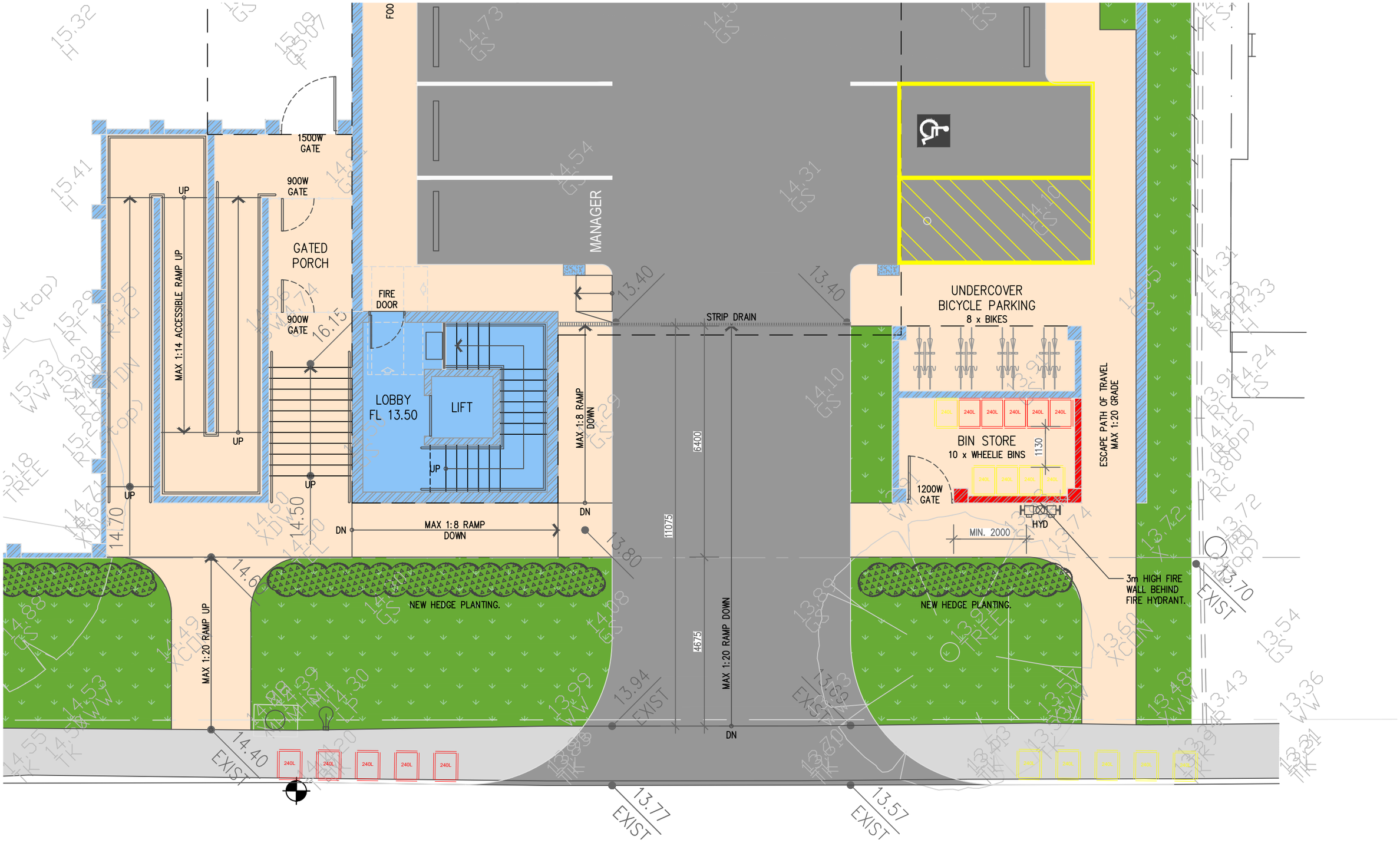
Waste type	Daily generation (L)	Days in operation (per week)	Weekly waste generation (L)	Weekly collection frequency
General waste	421.5	7	2950.5	3
Recyclables	421.5	7	2950.5	3

General Waste Bins

Bin Size (L)	Number of bins	Weekly capacity
240	5	3600
	Total weekly capacity (L)	3600

Recycle Waste Bins

Bin Size (L)	Number of bins	Weekly capacity
240	5	3600
	Total weekly capacity (L)	3600



Revision notes:

Rev:	Date:	Notes:	
1	21/04/2025	5 x 240L General Waste Bins	- Collected 3 x per week.
		5 x 240L Recycling Bins	- Collected 3 x per week.

Drawn by:
Paul Ghantous

Client:
Carcione Nominees Pty Ltd

Project:
U24.177 - 34-36 St Michael Terrace, Mount Pleasant
Proposed Child Care Centre

Drawing Title:
Bin store layout and access plan
240L General Waste and 240L Recycling Bins

Date:
21/04/2025

Scale @ A3:
1:100

Revision:
sk01

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Appendix G – Environmental Noise Assessment

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Environmental Noise Assessment - Childcare Centre

Lots 143 (#34) & 144 (#36) St Michael Terrace, Mount Pleasant

Reference: 24119666-01

Prepared for:
Ray Pardo C/- Element Advisory

Reference: 24119666-01

Lloyd George Acoustics Pty Ltd
ABN: 79 125 812 544

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P:	0410 107 440	0438 481 207	0448 912 604	0410 468 203

Date	Rev	Description	Author	Verified
25-Mar-25	0	Issued to Client	Matt Nolan	Terry George

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EXECUTIVE SUMMARY

Lloyd George Acoustics was engaged by Ray Pardo C/- Element Advisory to undertake a noise assessment for a proposed childcare centre (CCC) to be located at Lots 143 (#34) & 144 (#36) St Michael Terrace, Mount Pleasant. This report considered noise emissions from the proposed childcare centre to surrounding properties by way of noise modelling of child play, mechanical plant and car door closings.

Outdoor Child Play

Three different fencing options were included in the assessment of the outdoor child play noise, with all options predicted to achieve compliance at the nearby residences. The variation provided is based on whether strict compliance is required at the primary school, given this generates similar types of noise. This is to be discussed with stakeholders to determine an appropriate outcome. Where fencing is noted as solid, it is to be free of any gaps and have a minimum surface mass of 8 kg/m^2. Such material includes brick, limestone or double sheeted *Colorbond*. For areas where visual permeability is required, sound-rated plexiglass can be used.

Mechanical Plant

The mechanical plant assessment was based on assumptions in relation to the number, location, size and type of mechanical plant. Based on these assumptions, the plant was shown to exceed the assigned levels at multiple locations, although it was determined that compliance can be practicably achieved by including the following:

- For the condensing units:
  - install screening at a minimum of 1.8m high on the west side of the units; and
  - apply a 'night' / 'quiet' mode to reduce the noise levels by a minimum of 5 dB during the night period.
- For the kitchen exhaust:
  - install a residential spec range hood; or
  - only operate after 7am.

Once the mechanical plant has been designed and selected, noise is to be reviewed by a suitably qualified acoustical consultant.

Car Doors

The predicted noise from car door closings is compliant provided all bays (not including three bays located on the north side) are located under a roofed section of the basement with no openings.

1. INTRODUCTION

Lloyd George Acoustics was engaged by Ray Pardo C/- Element Advisory to undertake an environmental noise assessment for a proposed childcare centre (CCC) to be located at Lots 143 (#34) & 144 (#36) St Michael Terrace, Mount Pleasant (refer *Figure* 1-1) with the site plan shown in *Figure 1-2* and full Development Application (DA) plans provided in *Appendix A*. The purpose of this report is to consider noise emissions from the proposed childcare centre to surrounding properties.

Figure 1-1: Subject Site Location (Source: DPLH PlanWA)

The proposed childcare centre will be open Monday to Friday, 6.30am to 6.30pm and consist of the following:

- Six internal teaching spaces capable of accommodating up to 113 children, grouped as follows:
  - Activity 1: 15 places for children aged 2-3 years;
  - Activity 2: 20 places for children aged 2-3 years;
  - Activity 3: 30 places for children aged 3+ years;
  - Activity 4: 20 places for children aged 3+ years;
  - Activity 5: 12 places for children aged 0-1 years; and
  - Activity 6: 16 places for children aged 1-2 years.
- Outdoor play areas (not used prior to 7.00am);
- Amenities and associated mechanical plant such as:
  - Kitchen exhaust fan assumed to be located on roof above;
  - Various exhaust fans (toilets, laundry, nappy room) assumed to be located on the roof above;
  - Air-conditioning (AC) plant, assumed to located on the roof above Activity 3 teaching space.
- Car parking in the basement.

Figure 1-2: Proposed Site Plan

With regard to noise emissions, consideration is given to noise from child play, mechanical services and closing car doors at neighbouring properties, against the prescribed standards of the *Environmental Protection (Noise) Regulations 1997*.

Appendix B contains a description of some of the terminology used throughout this report.

2. CRITERIA

Environmental noise in Western Australia is governed by the *Environmental Protection Act 1986*, through the *Environmental Protection (Noise) Regulations 1997* (the Regulations).

2.1. Regulations 7, 8 & 9

This group of regulations defines the prescribed standard for noise emissions applicable to child play, mechanical services and car door closing as follows:

*"**7. Prescribed standard for noise emissions***

(1) Noise emitted from any premises or public place when received at other premises –

(a) must not cause, or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind; and

(b) must be free of –

(i) tonality; and

(ii) impulsiveness; and

(iii) modulation,

when assessed under regulation 9.

(2) For the purposes of subregulation (1)(a), a noise emission is taken to significantly contribute to a level of noise if the noise emission … exceeds a value which is 5 dB below the assigned level at the point of reception."

Tonality, impulsiveness and modulation are defined in regulation 9 (refer *Appendix B*). Under regulation 9(3), *"Noise is taken to be free of the characteristics of tonality, impulsiveness and modulation if -*

(a) the characteristics cannot be reasonably and practicably removed by techniques other than attenuating the overall level of noise emission; and

(b) the noise emission complies with the standard prescribed under regulation 7(1)(a) after the adjustments in the table [Table 2-1] … are made to the noise emission as measured at the point of reception."

Table 2-1 Adjustments Where Characteristics Cannot Be Removed

Where Noise Emission is Not Music*			Where Noise Emission is Music	
Tonality	Modulation	Impulsiveness	No Impulsiveness	Impulsiveness
+ 5 dB	+ 5 dB	+ 10 dB	+ 10 dB	+ 15 dB

* These adjustments are cumulative to a maximum of 15 dB.

The assigned levels (prescribed standards) for all premises are specified in regulation 8(3) and are shown in *Table 2-2*. The L_{A10} assigned level is applicable to noises present for more than 10% of a representative assessment period, generally applicable to "steady-state" noise sources. The L_{A1} is for short-term noise sources present for less than 10% and more than 1% of the time. The L_{Amax} assigned level is applicable for incidental noise sources, present for less than 1% of the time.

Table 2-2 Baseline Assigned Levels

Premises Receiving Noise	Time Of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises: highly sensitive area[1]	0700 to 1900 hours Monday to Saturday (Day)	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays (Sunday)	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days (Evening)	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35 + influencing factor	45 + influencing factor	55 + influencing factor
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial Premises	All hours	60	75	80
Industrial and Utility Premises	All hours	65	80	90

1. ***highly sensitive area*** means that area (if any) of noise sensitive premises comprising —
   (a) a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and
   (b) any other part of the premises within 15 metres of that building or that part of the building.

The influencing factor (IF), in relation to noise received at noise sensitive premises, has been calculated as 0 dB. *Table 2-3* shows the assigned levels including the influencing factor at the receiving locations.

Note that the primary school at 29 Queens Road is considered a noise sensitive premises and that strict compliance is required at this locality and at 15m from a building.

Table 2-3 Assigned Levels

Premises Receiving Noise	Time Of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
0 dB IF Noise sensitive premises: highly sensitive area[1]	0700 to 1900 hours Monday to Saturday (Day)	45	55	65
	0900 to 1900 hours Sunday and public holidays (Sunday)	40	50	65
	1900 to 2200 hours all days (Evening)	40	50	55
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35	45	55

It must be noted the assigned levels above apply outside the receiving premises and at a point at least 3 metres away from any substantial reflecting surfaces.

The assigned levels are statistical levels and therefore the period over which they are determined is important. The Regulations define the Representative Assessment Period (RAP) as *"a period of time of not less than 15 minutes, and not exceeding 4 hours, determined by* an *inspector* or *authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission"*. An inspector or authorised person is a person appointed under Sections 87 & 88 of the *Environmental Protection Act 1986* and include Local Government Environmental Health Officers and Officers from the Department of Water Environmental Regulation. Acoustic consultants or other environmental consultants are not appointed as an inspector or authorised person. Therefore, whilst this assessment is based on a 4-hour RAP, which is assumed to be appropriate given the nature of the operations, this is to be used for guidance only.

2.2. Regulation 3

*"**3. Regulations do not apply to certain noise emissions***

(1) Nothing in these regulations applies to the following noise emissions –

(a) Noise emissions from the propulsion and braking systems of motor vehicles operating on a road;"

The childcare centre car park is considered a road and therefore vehicle noise (propulsion and braking) is not assessed. Noise from vehicle car doors however are applicable, since these are not part of the propulsion or braking system.

2.3. Regulation 14A

"14A. Waste Collection and Other Works

(2) Regulation 7 does not apply to noise emitted in the course of carrying out class 1 works if –

(a) The works are carried out in the quietest reasonable and practicable manner; and

(b) The equipment used to carry out the works is the quietest reasonably available;

class 1 works means specified works carried out between -

(a) 0700 hours and 1900 hours on any day that is not a Sunday or a public holiday; or

(b) 0900 hours and 1900 hours on a Sunday or public holiday.

specified works means -

(a) The collection of waste; or

(b) The cleaning of a road or the drains for a road; or

(c) The cleaning of public places, including footpaths, cycle paths, car parks and beaches;"

In the case where specified works are to be carried out outside of class 1, a noise management plan is to be prepared and approved by the CEO.

3. METHODOLOGY

Computer modelling has been used to predict the noise emissions from the development to all nearby receivers. The software used was *SoundPLAN 9.0* with the ISO 9613 algorithms (ISO 17534-3 improved method) selected, as they include the influence of wind and are considered appropriate given the relatively short source to receiver distances. Input data required in the model are listed below and discussed in *Section 3.1* to *Section 3.5*:

- Meteorological Information;
- Topographical data;
- Ground Absorption; and
- Source sound power levels.

3.1. Meteorological Conditions

Meteorological information utilised is provided in *Table 3-1* and is considered to represent worst-case conditions for noise propagation. At wind speeds greater than those shown, sound propagation may be further enhanced, however background noise from the wind itself and from local vegetation is likely to be elevated and dominate the ambient noise levels.

Table 3-1: Modelling Meteorological Conditions

Parameter	Day (7.00am to 7.00pm)	Night (7.00pm to 7.00am)
Temperature (°C)	20	15
Humidity (%)	50	50
Wind Speed (m/s)	Up to 5	Up to 5
Wind Direction*	All	All

* The modelling package allows for all wind directions to be modelled simultaneously.

Alternatives to the above default conditions can be used where one year of weather data is available and the analysis considers the worst 2% of the day and night for the month of the year in which the worst-case weather conditions prevail (source: *Draft Guideline on Environmental Noise for Prescribed Premises*, May 2016). In most cases, the default conditions occur for more than 2% of the time and therefore must be satisfied.

3.2. Topographical Data

Topographical data was adapted from publicly available information (e.g. *Google*) in the form of spot heights and combined with the site plan.

Surrounding existing buildings were also incorporated in the noise model, as these can provide noise shielding as well as reflection paths. Single storey buildings are modelled with a height of 3.5-metres and any double storey buildings identified assumed to be 7.0-metres in height with receivers 1.4-metres above floor level.

3.3. Fencing

Three different fencing options have been included in the assessment as shown in *Table 3-2*. This fencing is to be solid, free of any gaps and have a minimum surface mass of 8 kg/m^2. Such material includes brick, limestone or double sheeted *Colorbond*. For areas where visual permeability is required, sound-rated plexiglass can be used. The three fence options were developed to:

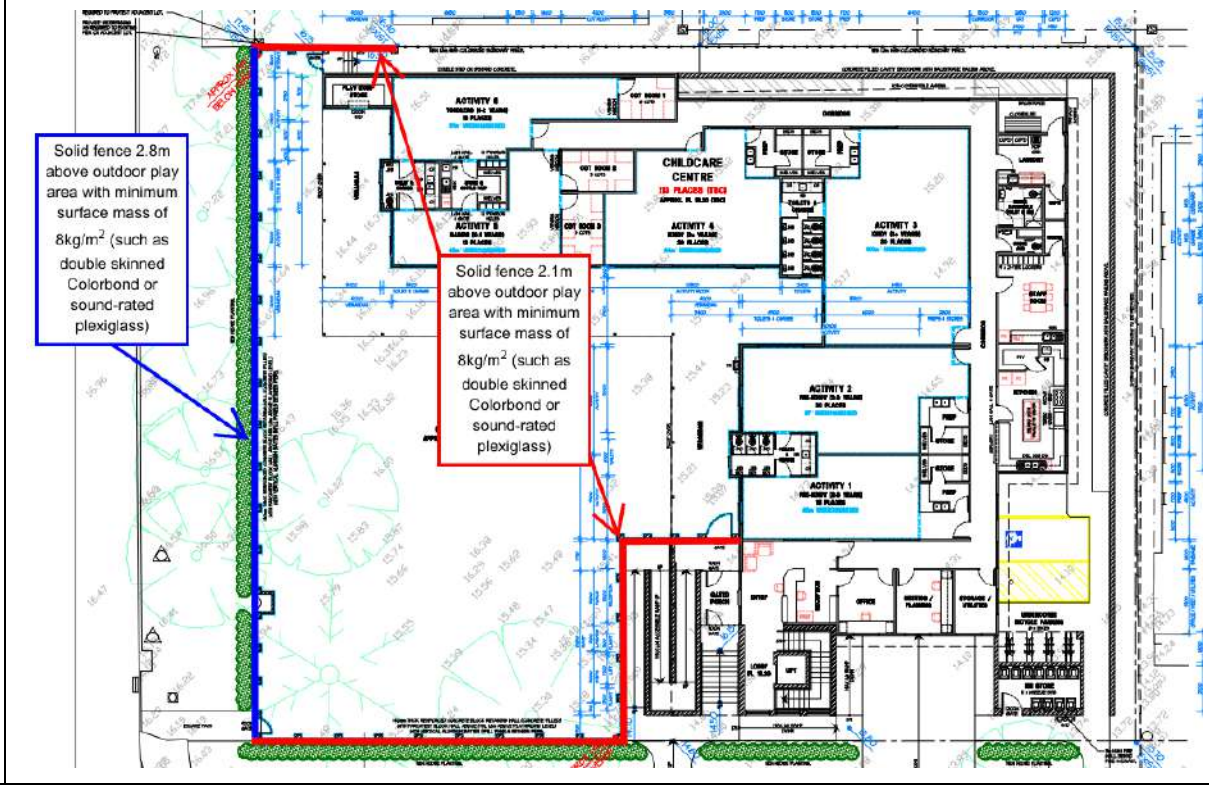
- A – Achieve strict compliance at all noise sensitive premises, including the primary school (within 15 metres of a building);
- B – Achieve compliance at all residences and within 1 metre of a building associated with the primary school, but not at all locations 15 metres from a school building; and
- C – Achieve compliance at all residences only.

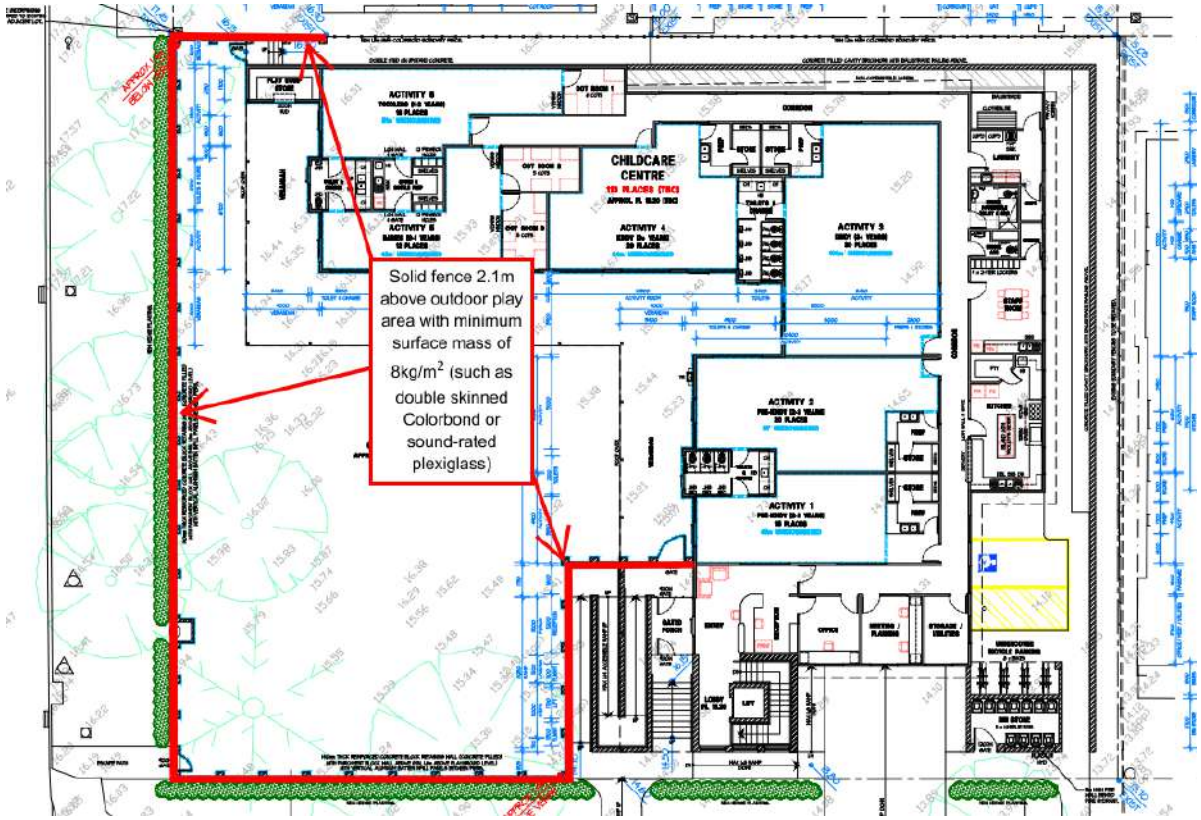
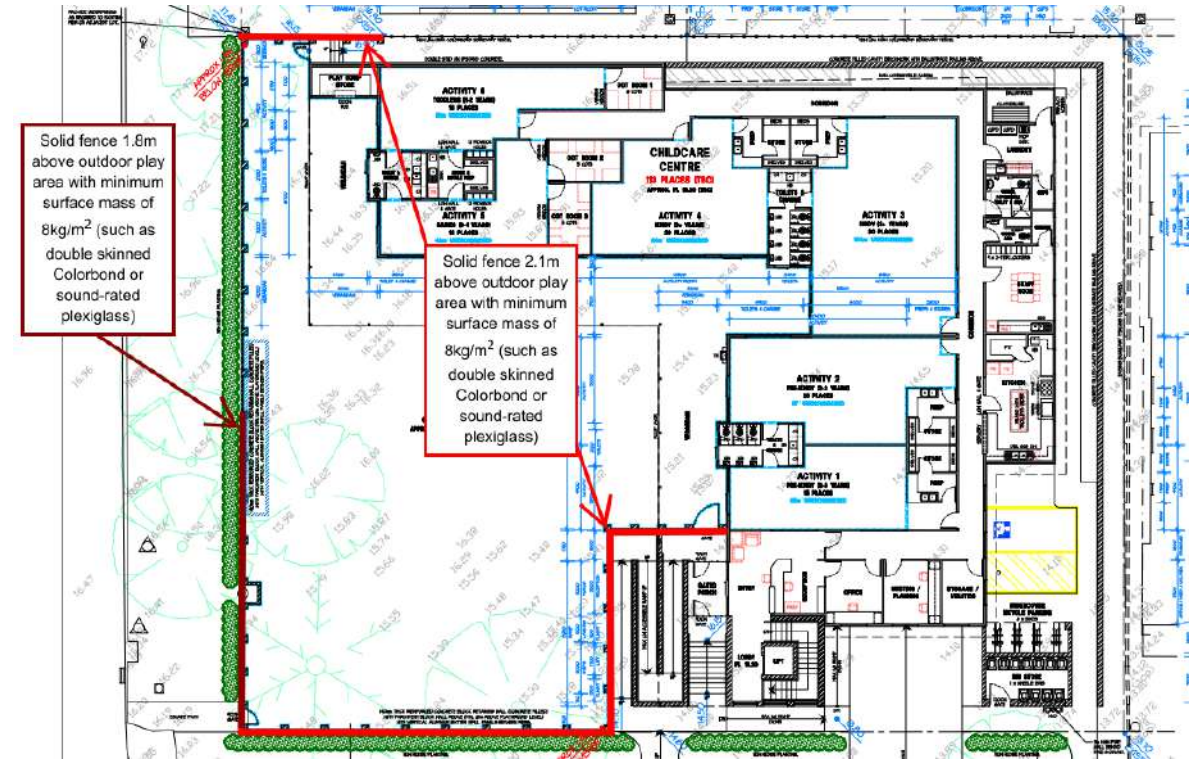
By presenting the three options, discussions can be had with relevant stakeholders on the necessity to achieve compliance at the primary school.

All other fencing is assumed to be standard *Colorbond*. Whilst *Colorbond* fencing is 1.8 metres high, it is modelled as 1.6 metres high to take into account the lightweight nature of the product and potential lesser acoustic performance compared to a denser product.

Figure 3-1 shows a 2D overview of the noise model with the location of all relevant receivers identified. Pink dots represent mechanical sources in the noise model with the pink polygon representing child play.

Table 3-2: Fencing Options

Fencing Option	Figure
A	

Fencing Option	Figure
B	
C	

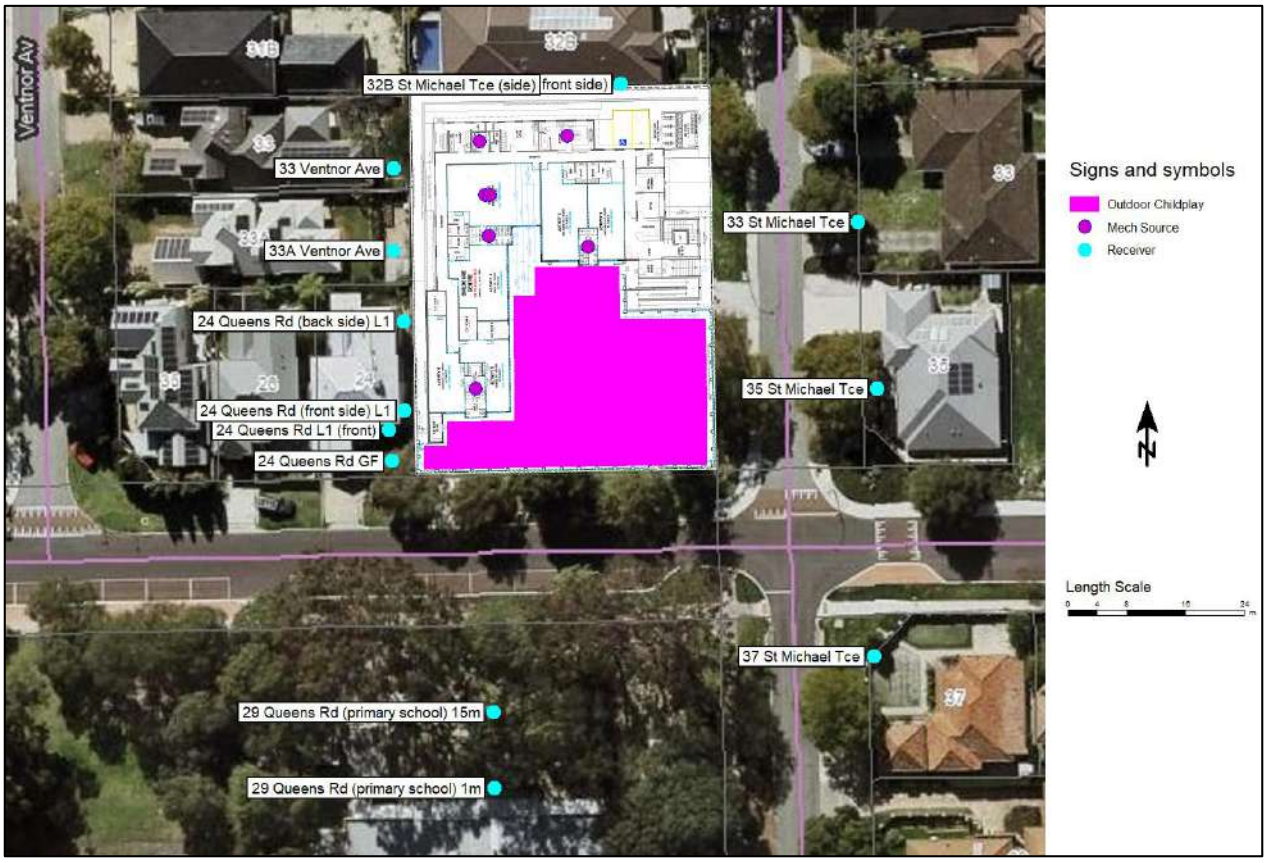


Figure 3-1: Overview of Noise Model

3.4. Ground Absorption

The ground absorption has been assumed to be 0.0 (0%) for the roads, 0.5 (50%) outside of the roads and 1.0 (100%) for the play areas, noting that 0.0 represents hard reflective surfaces such as water and 1.0 represents absorptive surfaces such as grass.

3.5. Source Sound Levels

The source sound power levels used in the modelling are provided in *Table 3-3*.

Table 3-3: Source Sound Power Levels, dB

Description	Octave Band Centre Frequency (Hz)								Overall dB(A)
	63	125	250	500	1k	2k	4k	8k	
Babies Play Aged 0-2 Years (10 kids), L_{10}	54	60	66	72	74	71	67	64	**78**
Toddler Play Aged 2-3 Years (10 kids), L_{10}	61	67	73	79	81	78	74	70	**85**
Kindy Play Aged 3+ Years (10 kids), L_{10}	64	70	75	81	83	80	76	72	**87**
AC Plant, double fan unit (each), L_{10}	72	74	68	69	63	61	53	47	**70**
General Exhaust Fans (each), L_{10}	60	65	62	63	60	61	56	53	**67**
Kitchen Exhaust Fan, L_{10}	50	64	61	70	69	66	62	50	**73**
Closing Car Door (each), L_{max}	71	74	77	81	80	78	72	61	**84**

The following is noted in relation to *Table 3-3*:

- Child play source levels are based on *Guideline for Childcare Centre Acoustic Assessments Version 3.0* produced by the Association of Australasian Acoustical Consultants (AAAC) published September 2020. Where the number of children for individual play areas is specified in the plans, these have been adjusted from the reference source levels using appropriate acoustical calculations. Outdoor child play was modelled as area sources at 1.0-metre above ground level. The sound power levels used in the model were scaled as follows:
  - 28 children aged 0-2 years = 82 dB(A);
  - 35 children aged 2-3 years = 90 dB(A);
  - 50 children aged 3+ years = 94 dB(A).
- Based on the AAAC Guideline 3.0, source sound power levels for AC condensing units were assumed. Medium sized (double fan) outdoor units were deemed appropriate with two (2) modelled as point sources 1.0 metre above roof level of the Activity 3 room.
- Other mechanical plant includes four (4) exhaust fans (toilets and laundry) and one kitchen exhaust fan. All were modelled as point sources approximately 0.5 metres above roof level and above the area serviced.
- Car doors closing from three car bays located on the north side of the basement were modelled as a point source 1.0-metre above ground level. All other car door closings that will occur within the basement are located under a roofed section of the basement and are therefore not considered to have a significant impact. Since noise from a car door closing is a short term event, only the L_{Amax} level is applicable.

4. RESULTS AND ASSESSMENT

4.1. Outdoor Child Play Noise

The childcare development will host up to 113 children. It is noted play time is generally staggered and therefore not all children would be playing outside at once for extended periods of time. However, noise levels were conservatively predicted for all children playing simultaneously, as a worst-case scenario. The critical assigned level is during the day, as whilst the childcare centre will open at 6.30am, child play will not commence until after 7.00am. Noise from child play is not considered to contain annoying characteristics within the definition of the Regulations and therefore no adjustments are made to the predicted noise levels.

To understand the noise impact of changing the height/extent of the south boundary fence, predominantly affecting noise impacts to the primary school, three different fencing options (as shown in *Table 3-2*) have been included in the assessment of the outdoor child play noise as follows:

- Scenario 1 – Outdoor Child Play Noise with Fencing Option A – full compliance at residences and primary school
- Scenario 2 - Outdoor Child Play Noise with Fencing Option B – full compliance at residences and partial compliance at primary school
- Scenario 3 – Outdoor Child Play Noise with Fencing Option C – full compliance at residences only.

4.1.1. Scenario 1 – Outdoor Child Play Noise with Fencing Option A

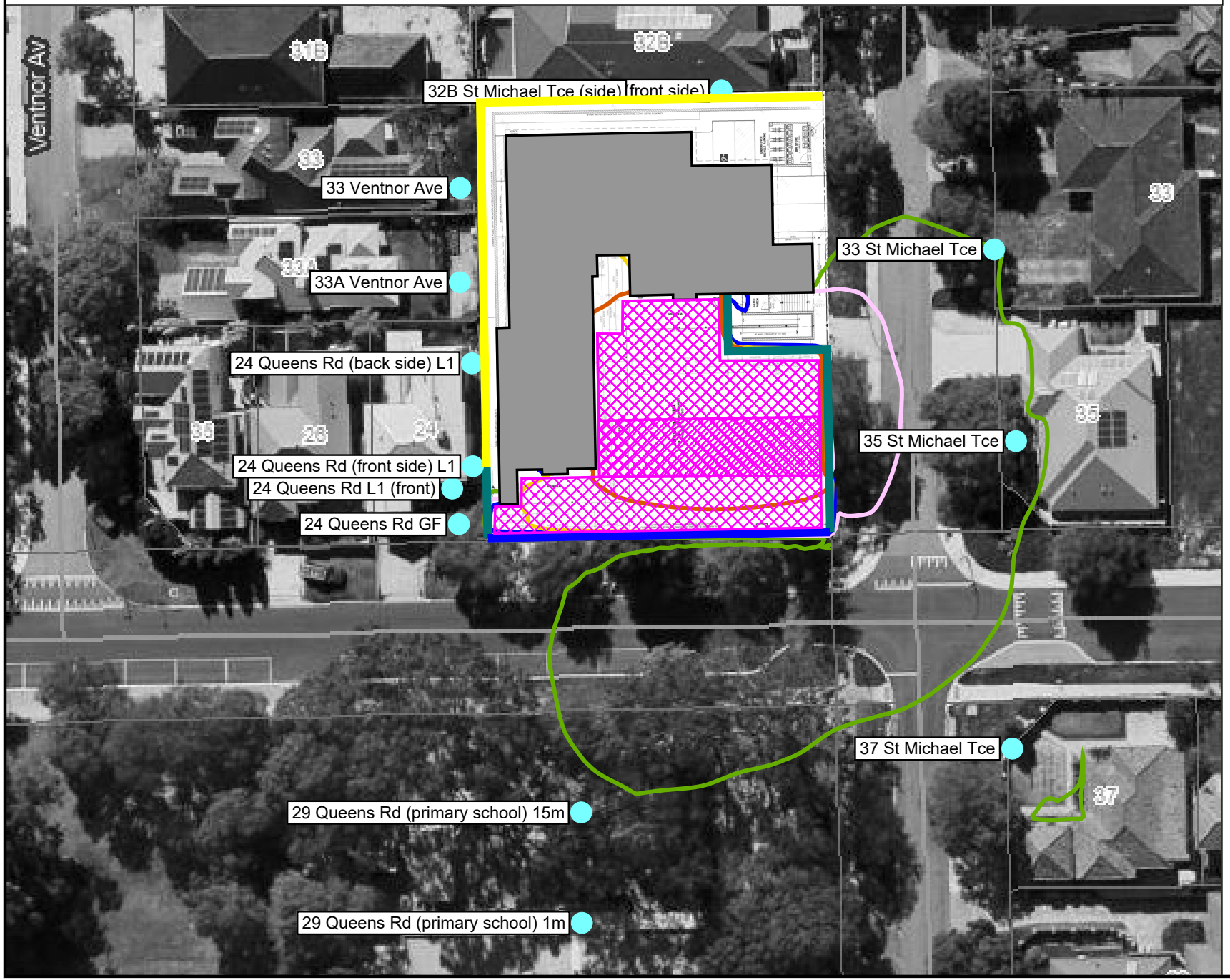
The results of the child play noise are provided and assessed in *Table 4-1*, noting this includes a 2.8-metre high fence along the full length of the south boundary, and a 2.1-metre high fence along the other sides of the outdoor child play area. It is noted that these fence heights are measured from the outdoor play area ground level. A noise contour plot is also provided in *Figure 4-1* showing noise levels at ground floor.

Table 4-1: Scenario 1 - Child Play Noise Predicted Levels and Assessment, dB L_{A10}

Receiver	Babies (0-2 yo)	Toddler (2-3 yo)	Kindy (3+ yo)	Total	Assigned Level	Assessment
24 Queens Rd GF	36	37	41	**43**	**45**	*Complies*
24 Queens Rd L1 (back side)	31	36	39	**41**	**45**	*Complies*
24 Queens Rd L1 (front side)	39	36	39	**43**	**45**	*Complies*
24 Queens Rd L1 (front)	42	37	41	**45**	**45**	*Complies*
29 Queens Rd (1m from primary school building)	28	38	42	**43**	**45**	*Complies*
29 Queens Rd (15m from primary school building)	30	39	43	**45**	**45**	*Complies*
32B St Michael Tce (front side)	19	28	31	**33**	**45**	*Complies*
32B St Michael Tce (side)	18	26	30	**32**	**45**	*Complies*
33 St Michael Tce	32	40	43	**45**	**45**	*Complies*
33 Ventnor Ave	21	29	32	**34**	**45**	*Complies*
33A Ventnor Ave	22	29	32	**34**	**45**	*Complies*
35 St Michael Tce	31	39	43	**44**	**45**	*Complies*
37 St Michael Tce	28	38	42	**44**	**45**	*Complies*

The assessment demonstrates compliance is achieved during the day at all noise sensitive premises.

Figure 4-1 Scenario 1 - Child Play Noise Contour Plot (1.4m AGL), dB L_{A10}



Predicted Noise level

- = 45
- = 50
- = 55
- = 60
- = 65

Legend

- Childcare Centre
- Receiver
- Outdoor Childplay
- 1.8m Colorbond Fence
- 2.1m Solid Barrier
- 2.8m Solid Barrier

N

Scale 1:600

0 4 8 16 24 m

Project No: 24119666
Consultant: MN
Date: 25/03/2025
Algorithm: ISO 9613
SoundPLAN Version: 9.0

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4.1.2. Scenario 2 - Outdoor Child Play Noise with Fencing Option B

The results of the child play noise are provided and assessed in *Table 4-2*, noting this includes a 2.1-metre high fence along all sides of the outdoor child play area. It is noted that this fence height is measured from the outdoor play area ground level. A noise contour plot is also provided in *Figure 4-2* showing noise levels at ground floor.

Table 4-2: Scenario 2 - Child Play Noise Predicted Levels and Assessment, dB L_{A10}

Receiver	Babies (0-2 yo)	Toddler (2-3 yo)	Kindy (3+ yo)	Total	Assigned Level	Assessment
24 Queens Rd GF	36	37	41	**43**	**45**	*Complies*
24 Queens Rd L1 (back side)	31	35	39	**41**	**45**	*Complies*
24 Queens Rd L1 (front side)	39	36	40	**43**	**45**	*Complies*
24 Queens Rd L1 (front)	41	37	40	**44**	**45**	*Complies*
29 Queens Rd (1m from primary school building)	31	40	43	**45**	**45**	*Complies*
29 Queens Rd (15m from primary school building)	33	42	45	**47**	**45**	+2 dB
32B St Michael Tce (front side)	19	27	31	**33**	**45**	*Complies*
32B St Michael Tce (side)	17	26	29	**31**	**45**	*Complies*
33 St Michael Tce	31	39	43	**45**	**45**	*Complies*
33 Ventnor Ave	21	29	32	**34**	**45**	*Complies*
33A Ventnor Ave	22	29	32	**34**	**45**	*Complies*
35 St Michael Tce	30	39	43	**44**	**45**	*Complies*
37 St Michael Tce	30	39	43	**45**	**45**	*Complies*

The assessment demonstrates compliance is achieved during the day at all nearby residences. If noise from child play was assessable against the assigned levels at the primary school located to the south, exceedances would be predicted when further than 1m from the building.

Figure 4-2 Scenario 2 - Child Play Noise Contour Plot (1.4m AGL), dB L_{A10}

Predicted Noise level

	= 45
	= 50
	= 55
	= 60
	= 65

Legend

- Childcare Centre
- Receiver
- Outdoor Childplay
- 1.8m Colorbond Fence
- 2.1m Solid Barrier

N

Scale 1:600

0 4 8 16 24 m

Project No: 24119666
Consultant: MN
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4.1.3. Scenario 3 – Outdoor Child Play Noise with Fencing Option C

The results of the child play noise are provided and assessed in *Table 4-3*, noting this includes a 1.8-metre high fence along approximately half the length of the south boundary, and a 2.1 metre high fence along the other sides of the outdoor child play area. It is noted that these fence heights are measured from the outdoor play area ground level.

Table 4-3: Scenario 3 - Child Play Noise Predicted Levels and Assessment, dB L_{A10}

Receiver	Babies (0-2 yo)	Toddler (2-3 yo)	Kindy (3+ yo)	Total	Assigned Level	Assessment
24 Queens Rd GF	35	36	39	**42**	**45**	*Complies*
24 Queens Rd L1 (back side)	30	36	39	**41**	**45**	*Complies*
24 Queens Rd L1 (front side)	37	37	40	**43**	**45**	*Complies*
24 Queens Rd L1 (front)	39	37	41	**44**	**45**	*Complies*
29 Queens Rd (1m from primary school building)	36	43	46	**48**	**45**	+3 dB
29 Queens Rd (15m from primary school building)	39	46	49	**51**	**45**	+6 dB
32B St Michael Tce (front side)	19	27	31	**33**	**45**	*Complies*
32B St Michael Tce (side)	17	26	29	**31**	**45**	*Complies*
33 St Michael Tce	31	39	43	**45**	**45**	*Complies*
33 Ventnor Ave	20	29	32	**34**	**45**	*Complies*
33A Ventnor Ave	21	29	32	**34**	**45**	*Complies*
35 St Michael Tce	30	39	43	**44**	**45**	*Complies*
37 St Michael Tce	34	40	44	**45**	**45**	*Complies*

The assessment demonstrates compliance is achieved during the day at all nearby residences. If noise from child play was assessable against the assigned levels at the primary school located to the south, exceedances would be predicted at 1m and 15m from the primary school building.

Figure 4-3 Scenario 3 - Child Play Noise Contour Plot (1.4m AGL), dB L_{A10}

Predicted Noise level

	= 45
	= 50
	= 55
	= 60
	= 65

Legend

- Childcare Centre
- Receiver
- Outdoor Childplay
- 1.8m Colorbond Fence
- 2.1m Solid Barrier
- 1.8m Solid Barrier

N

Scale 1:600

0 4 8 16 24 m

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Date: 25/03/2025
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4.2. Mechanical Plant Noise

Mechanical plant noise consists of the outdoor AC condensing units and exhaust fans, with the predicted and assessed noise levels provided in *Table 4-4*. As all the mechanical plant is assumed to be located on the roof, the fencing around the outdoor child play area is not expected to make a significant difference to the noise levels at the nearby receivers. Therefore, only Fencing Option C (as shown in *Table 3-2*) was used in the assessment as a worst case. The critical assigned level is during the night, as the plant may operate prior to 7.00am. An adjustment of + 5 dB is included for tonality, since this may be present for such noise sources. A noise contour plot is also provided in *Figure 4-4* showing noise levels at ground floor.

Table 4-4: Mechanical Plant Noise Predicted Levels and Assessment, dB L_{A10}

Receiver	AC	Exhaust Fans	Total	Total Adjusted	Assigned Level	Assessment
24 Queens Rd GF	23	24	27	**32**	**35**	*Complies*
24 Queens Rd L1 (back side)	34	35	37	**42**	**35**	+7 dB
24 Queens Rd L1 (front side)	29	35	36	**41**	**35**	+6 dB
24 Queens Rd L1 (front)	22	32	32	**37**	**35**	+2 dB
29 Queens Rd (1m from primary school building)	21	25	26	**31**	**35**	*Complies*
29 Queens Rd (15m from primary school building)	22	27	28	**33**	**35**	*Complies*
32B St Michael Tce (front side)	25	36	36	**41**	**35**	+ 6 dB
32B St Michael Tce (side)	27	37	38	**43**	**35**	+8 dB
33 St Michael Tce	23	29	30	**35**	**35**	*Complies*
33 Ventnor Ave	33	31	35	**40**	**35**	+5 dB
33A Ventnor Ave	32	29	34	**39**	**35**	+4 dB
35 St Michael Tce	21	26	27	**32**	**35**	*Complies*
37 St Michael Tce	21	25	27	**32**	**35**	*Complies*

The calculations show exceedances at multiple receiver locations due to the condensing units and kitchen exhaust fan located on the roof. Compliance can be achieved by including the following:

- For the condensing units:
  - install screening at a minimum of 1.8m high on the west side of the units; and
  - apply a 'night' / 'quiet' mode to reduce the noise levels by a minimum of 5 dB during the night period.
- For the kitchen exhaust:
  - install a residential spec range hood; or
  - only operate after 7am.

It must be noted that the assessment is based on assumptions in relation to the number, location, size and type of mechanical plant. Therefore, once the mechanical plant has been designed and selected, noise is to be reviewed by a suitably qualified acoustical consultant.

4.3. Indoor Child Play

An assessment of noise levels from indoor child play was carried out and the resulting noise levels at all locations were predicted to be well below that of outdoor child play considered in *Section 4.1*. This assessment was carried out based on the following considerations:

- Internal noise levels within activity rooms would not exceed those from outdoor play for each age group, regardless of windows being open or closed; and
- Any music played within the internal activity areas would be 'light' music with no significant bass content and played at a relatively low level.

Figure 4-4 Mechanical Plant Noise Contour Plot (1.4m AGL), dB L_{A10}

Predicted Noise level

= 35
= 40
= 45
= 50
= 55

Legend

- Childcare Centre
- Receiver
- Mech Source
- 1.8m Colorbond Fence
- 2.1m Solid Barrier
- 1.8m Solid Barrier

N

Scale 1:600

0 4 8 16 24 m

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SoundPLAN Version: 9.0

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4.4. Car Door Closing Noise

Predicted and assessed noise levels for car doors closing are provided in *Table 4-5* being the maximum noise level from the worst-case car bay for each receiver. The assessment has only included car doors closing from three car bays located on the north side of the basement and Fencing Option C (as shown in *Table 3-2*) as a worst case. The critical assigned level is during the night, as car door closings will occur prior to 7.00am. An adjustment of + 10 dB is included for impulsiveness, since this may be present for such noise sources. A noise contour plot is also provided in *Figure 4-5* showing noise levels at ground floor.

Table 4-5: Car Door Closing Noise Predicted Levels and Assessment, dB L_{Amax}

Receiver	Car Door	Total Adjusted	Assigned Level	Assessment
24 Queens Rd GF	18	**28**	**55**	*Complies*
24 Queens Rd L1 (back side)	19	**29**	**55**	*Complies*
24 Queens Rd L1 (front side)	17	**27**	**55**	*Complies*
24 Queens Rd L1 (front)	16	**26**	**55**	*Complies*
29 Queens Rd (1m from primary school building)	15	**25**	**55**	*Complies*
29 Queens Rd (15m from primary school building)	17	**27**	**55**	*Complies*
32B St Michael Tce (front side)	45	**55**	**55**	*Complies*
32B St Michael Tce (side)	43	**53**	**55**	*Complies*
33 St Michael Tce	33	**43**	**55**	*Complies*
33 Ventnor Ave	24	**34**	**55**	*Complies*
33A Ventnor Ave	22	**32**	**55**	*Complies*
35 St Michael Tce	29	**39**	**55**	*Complies*
37 St Michael Tce	23	**33**	**55**	*Complies*

Noise from car doors is predicted to comply at all nearest receivers during the critical night period.

Figure 4-5 Car Door Noise Contour Plot (1.4m AGL), dB L_{Amax}

Predicted Noise level

	= 55
	= 60
	= 65
	= 70
	= 75

Legend

- Childcare Centre
- Receiver
- Car Source
- 1.8m Colorbond Fence
- 2.1m Solid Barrier
- 1.8m Solid Barrier

N

Scale 1:600

0 4 8 16 24 m

Project No: 24119666
Consultant: MN
Date: 25/03/2025
Algorithm: ISO 9613
SoundPLAN Version: 9.0

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5. RECOMMENDATIONS

5.1. Child Play

Three different fencing options were included in the assessment (as shown in *Table 3-2*) of the outdoor child play noise, with all options predicted to achieve compliance at the nearby residences. The variation provided is based on whether strict compliance is required at the primary school, given this generates similar types of noise. This is to be discussed with stakeholders to determine an appropriate outcome. *Table 5-1* provides the predicted noise levels for each fencing option at 1m and 15m from the primary school building. This fencing is to be free of any gaps and have a minimum surface mass of 8 kg/m^2. Such material includes brick, limestone or double sheeted *Colorbond*. For areas where visual permeability is required, sound-rated plexiglass can be used.

Table 5-1: Fencing Options and Noise Levels at the Primary School

Fencing Option	Fencing on East and West Side of Child Play Area	Fencing on South Side of Child Play Area	L_{A10} Noise Level Predicted at Distance from Primary School Building		Assessment at Distance from Primary School Building	
			1m	15m	1m	15m
A	2.1 metre high above outdoor play area	2.8 metre high above outdoor play area, included along the full length	43	45	Compliant	Compliant
B	2.1 metre high above outdoor play area	2.1 metre high above outdoor play area, included along the full length	45	47	Compliant	+2 dB
C	2.1 metre high above outdoor play area	1.8 metre high above outdoor play area, included along approx. half the length	48	51	+3 dB	+6 dB

Whilst not necessarily required for compliance, to further minimise noise impacts as part of best practice, the following are provided:

- The behaviour and 'style of play' of children should be monitored to prevent particularly loud activity e.g. loud banging/crashing of objects, 'group' shouts/yelling;
- Favour soft finishes in the outdoor play area to minimise impact noise (e.g. soft grass, sand pit(s), rubber mats) over timber or plastic;
- Favour soft balls and rubber wheeled toys;
- Crying children should be taken inside to be comforted;
- Child play to be staggered;
- No amplified music to be played outside;
- Any music played within the internal activity areas to be 'light' music with no significant bass content and played at a relatively low level;

5.2. Mechanical Plant

Mechanical plant was shown to exceed the assigned levels within the assessment, although compliance can be practicably achieved by including the following:

- For the condensing units:
  - install screening at a minimum of 1.8m high on the west side of the units; and
  - apply a 'night' / 'quiet' mode to reduce the noise levels by a minimum of 5 dB during the night period.
- For the kitchen exhaust:
  - install a residential spec range hood; or
  - only operate after 7am.

It must be noted that the assessment is based on assumptions in relation to the number, location, size and type of mechanical plant. Therefore, the following are also recommended:

- Once the mechanical plant has been designed and selected, the noise levels shall be reviewed prior to Building Permit;
- All exhaust fans shall be located inside the ceiling void and shall be axial fan type, allowing the incorporation of an attenuator if required;
- All fans shall be variable speed drive so that maximum speed is only occurring when necessary with demand;
- All plant shall be selected taking into consideration noise levels. That is, when comparing manufacturers of equivalent equipment, select the quieter model;
- All plant is to be appropriately vibration isolated to 95% isolation efficiency.

5.3. Car Doors

The predicted noise from car door closings is compliant provided all bays (not including three bays located on the north side) are located under a roofed section of the basement with no openings.

Appendix A – Development Plans

CAR PARKING:

USE	VALUE	CALC	REQUIRED
CHILDCARE	29 EMPLOYEES (est)	0.5/STAFF	14.5 (est)
	113 CHILDREN	1/10 CHILDREN	11.3
TOTAL REQUIRED			**25.8 (est)**
TOTAL PROVIDED			**26**

NOTES

THIS DRAWING IS CONCEPTUAL ONLY (INCLUDING CHILD PLACEMENT NUMBERS WHICH ARE ESTIMATES ONLY) AND SUBJECT TO THE FOLLOWING:-

1. ANY TITLE ENCUMBRANCES;
2. CONTOUR AND FEATURE SURVEY;
3. LOCATION OF EXISTING SERVICES / EASEMENTS;
4. END USER / OPERATOR REQUIREMENTS;
5. FULL TOWN PLANNING ASSESSMENT;
6. PLANNING APPROVAL;
7. TRAFFIC / TRANSPORT ASSESSMENT;
8. BUSHFIRE RISK ASSESSMENT;
9. ACOUSTIC ASSESSMENT;
10. DETAILED DESIGN DEVELOPMENT;
11. CERTIFICATE OF COMPLIANCE WITH NCC AND RELEVANT AUSTRALIAN STANDARDS;
12. BUILDING PERMIT;
13. CHILDCARE LICENCE.

HINDLEY & ASSOCIATES PTY LTD
BUILDING DESIGNERS

166 STIRLING HIGHWAY
NEDLANDS WA 6009

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NEDLANDS WA 6909

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PRELIMINARY
DEVELOPMENT APPLICATION

HINDLEY & ASSOCIATES P/L
AS TRUSTEE FOR
HINDLEY TRUST
ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

NO:	DATE:	REVISION:	DRAWN:	CHECK:
-				
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A1 SHEET

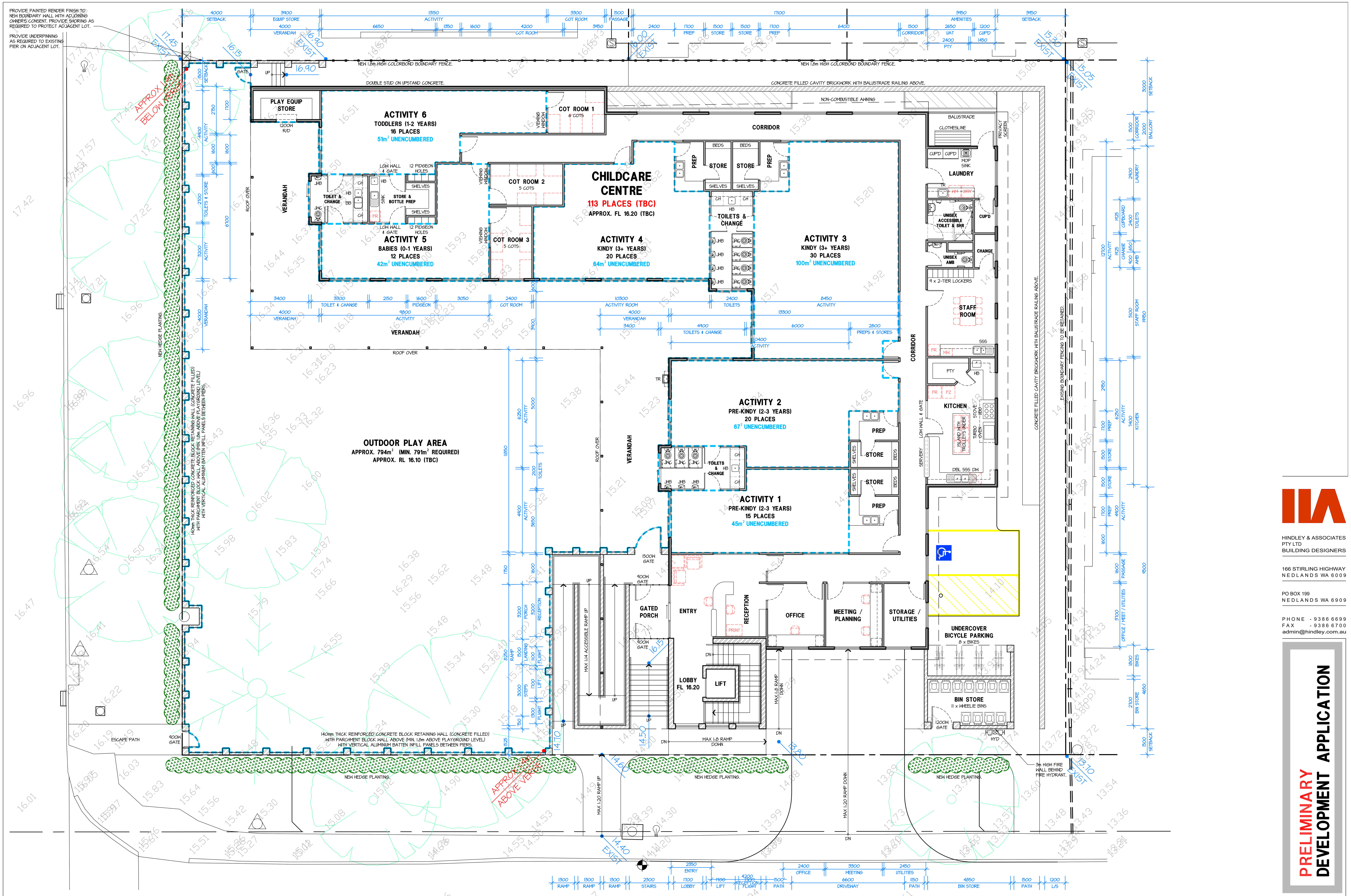
PROPOSED SITE PLAN

SCALE 1:200

N

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date	-	28.11.24
Design	-	SDS
Drawn	-	SDS
Checked	-	SDS
Scale	-	1:200
Job No.	-	0847
Dwg	-	DA01
Rev	-	-



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HINDLEY TRUST
ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

NO:	DATE:	REVISION:	DRAWN:	CHECK:
-				

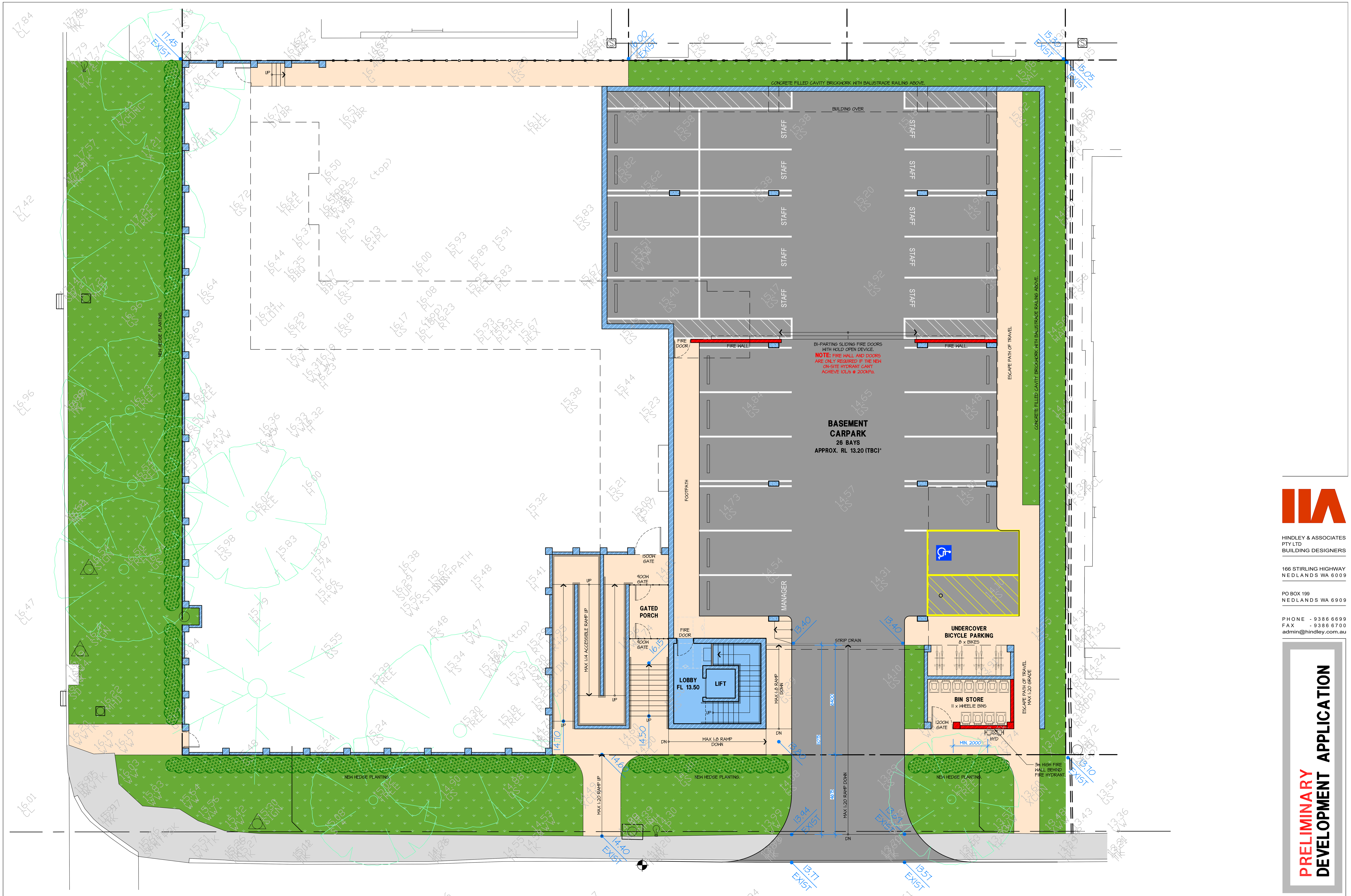
A1 SHEET

PROPOSED GROUND FLOOR PLAN

SCALE 1:100

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date	28.11.24
Design	SDS
Drawn	SDS
Checked	SDS
Scale	1:100
Job No.	0847
Dwg	DA04
Rev	-



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THIS IS A COMPUTER GENERATED DRAWING AND SHALL NOT BE ALTERED BY HAND.

HINDLEY & ASSOCIATES P/L
AS TRUSTEE FOR
HINDLEY TRUST
ACN No. 088 989 904

BUILDING DESIGNERS ASSOCIATION OF WA INC

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A1 SHEET

PROPOSED BASEMENT FLOOR PLAN

SCALE 1:100

N

PROPOSED CHILDCARE CENTRE
LOTS 143 (34) & 144 (36)
ST MICHAEL TCE, MOUNT PLEASANT
for STOCK ROAD LAND PTY LTD

Date -	28.11.24
Design -	SDS
Drawn -	SDS
Checked -	SDS
Scale -	1:100
Job No. -	0847
Dwg -	DA03
Rev -	-

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PRELIMINARY DEVELOPMENT APPLICATION

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 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.

- **Sound Power Level (L_w)**

Under normal conditions, a given sound source will radiate the same amount of energy, irrespective of its surroundings, being the sound power level. This is similar to a 1kW electric heater always radiating 1kW of heat. The sound power level of a noise source cannot be directly measured using a sound level meter but is calculated based on measured sound pressure level at known distances. Noise modelling incorporates source sound power levels as part of the input data.

- **Sound Pressure Level (L_p)**

The sound pressure level of a noise source is dependent upon its surroundings, being influenced by distance, ground absorption, topography, meteorological conditions etc. and is what the human ear actually hears. Using the electric heater analogy above, the heat will vary depending upon where the heater is located, just as the sound pressure level will vary depending on the surroundings. Noise modelling predicts the sound pressure level from the sound power levels taking into account ground absorption, barrier effects, distance etc.

- **L_{ASlow}**

This is the noise level in decibels, obtained using the A-frequency weighting and the S (slow) time weighting. Unless assessing modulation, all measurements use the slow time weighting characteristic.

- **L_{AFast}**

This is the noise level in decibels, obtained using the A-frequency weighting and the F (fast) time weighting. This is used when assessing the presence of modulation.

- **L_{APeak}**

This is the greatest absolute instantaneous sound pressure level in decibels using the A-frequency weighting.

- **L_{Amax}**

An L_{Amax} level is the maximum A-weighted noise level during a particular measurement.

- **L_{A1}**

The L_{A1} level is the A-weighted noise level exceeded for 1 percent of the measurement period and is considered to represent the average of the maximum noise levels measured.

- **L_{A10}**

The L_{A10} level is the A-weighted noise level exceeded for 10 percent of the measurement period and is considered to represent the "intrusive" noise level.

- **L_{A90}**

The L_{A90} level is the A-weighted noise level exceeded for 90 percent of the measurement period and is considered to represent the "background" noise level.

- **L_{Aeq}**

The equivalent steady state A-weighted sound level ("equal energy") in decibels which, in a specified time period, contains the same acoustic energy as the time-varying level during the same period. It is considered to represent the "average" noise level.

- **One-Third-Octave Band**

Means a band of frequencies spanning one-third of an octave and having a centre frequency between 25 Hz and 20000 Hz inclusive.

- **Representative Assessment Period**

Means a period of time not less than 15 minutes, and not exceeding four hours, determined by an inspector or authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission.

- **L_{Amax} assigned level**

Means an assigned level, which, measured as a L_{ASlow} value, is not to be exceeded at any time.

- **L_{A1} assigned level**

Means an assigned level, which, measured as a L_{ASlow} value, is not to be exceeded for more than 1 percent of the representative assessment period.

- **L_{A10} assigned level**

Means an assigned level, which, measured as a L_{ASlow} value, is not to be exceeded for more than 10 percent of the representative assessment period.

- **Tonal Noise**

A tonal noise source can be described as a source that has a distinctive noise emission in one or more frequencies. An example would be whining or droning. The quantitative definition of tonality is:

– 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 $L_{A\ Slow}$ levels.

This is relatively common in most noise sources.

- **Modulating Noise**

A modulating source is regular, cyclic and audible and is present for at least 10% of the measurement period. The quantitative definition of modulation is:

– a variation in the emission of noise that —

(a) is more than 3 dB $L_{A\ Fast}$ or is more than 3 dB $L_{A\ Fast}$ in any one-third octave band; and

(b) is present for at least 10% of the representative assessment period; and

(c) is regular, cyclic and audible.

- **Impulsive Noise**

An impulsive noise source has a short-term banging, clunking or explosive sound. The quantitative definition of impulsiveness means:

– a variation in the emission of a noise where the difference between L_{Apeak} and L_{Amax} is more than 15 dB when determined for a single representative event.

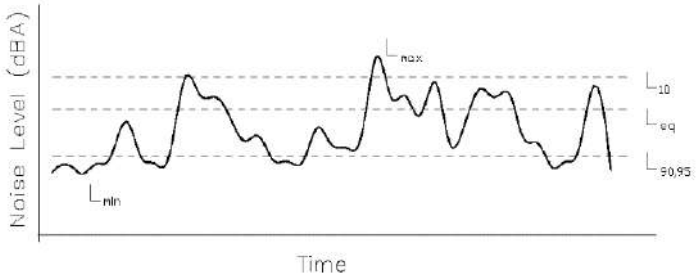
- **Major Road**

Is a road with an estimated average daily traffic count of more than 15,000 vehicles.

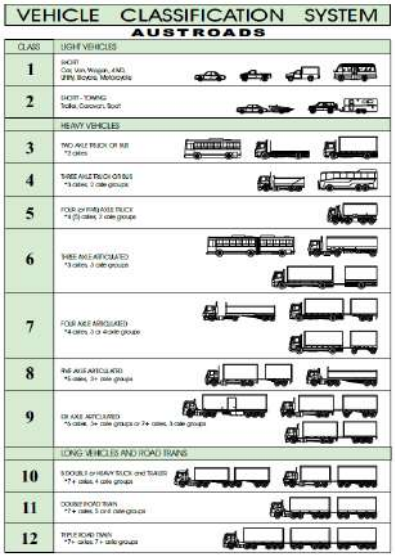
- **Secondary / Minor Road**

Is a road with an estimated average daily traffic count of between 6,000 and 15,000 vehicles.

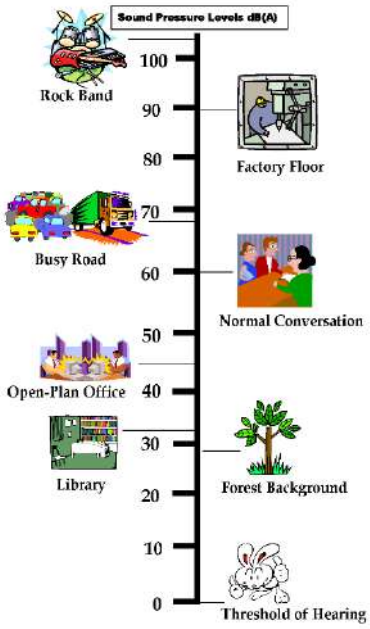
- **Chart of Noise Level Descriptors**



- **Austroads Vehicle Class**



- **Typical Noise Levels**



Lots 143 and 144 (Nos. 34 and 36) St Michael Terrace, Mount Pleasant

Proposed Child Care Premise

June 2025 | 23-385

element. | PART OF SLR

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