Contour
Town Planners

Town Planning and Urban Context Report

495-507 Barkly Street, Footscray

Date of Report: October 2022
Prepared by: **Contour Consultants Aust Pty Ltd**

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Contents

1 Introduction

This report has been prepared for Fabcot Pty Ltd to accompany an application for a planning permit, for the use and development of the land at 495-507 Barkly Street, West Footscray.

In planning terms, the application proposes the use and development of the land for the purpose of a two-storey building comprising 'Supermarket', 'Retail Premises', 'Child Care Centre', 'Office' and 'Leisure and Recreation'. The application also proposes alterations of access to a road in a Transport Zone 2 and the sale of liquor.

This report provides:

- An overview of the subject site and surrounds;
- A summary of the applicable statutory planning framework as set out in the Maribyrnong Planning Scheme;
- An analysis of the site opportunities, constraints, and the rationale for the design response;
- A summary of the development proposal, as detailed in the application plans prepared by i2C Architects; and
- An assessment of the proposal having regard to the relevant provisions of the Maribyrnong Planning Scheme.

The project team comprises:

Fabcot Pty Ltd
Client

i2C
Project Architect

Contour Consultants
Town Planner

Ratio
Traffic and Waste Engineers

Acoustic Logic
Acoustic Engineers

Galbraith and Associates
Arborist

Economist
Deep End Services

Urbis
Landscape Architect

2 Subject Site and Surrounds

2.1 Subject Site

The subject site (the "Site") is commonly known as 495-507 Barkly Street, Footscray and is located in the West Footscray Neighbourhood Activity Centre on the south side of Barkly Street between Hewitt Avenue to the east and Warleigh Road to the west.

The Site consists of three separate parcels of land which are formally described as:

- CP 159655N;
- Lot 1 on Title Plan 756704G; and
- Lot 1 on Title Plan 710205K.

The Site has a frontage to Barkly Street of 83.7 metres, a total eastern boundary length of 76.41 metres, a southern boundary length of 76 metres and a western boundary length of 76.5sqm. In total, the subject site has an area of 6,290.33sqm.

The Site is currently occupied by a vacant single storey 'Place of Assembly' commonly known as 501 Receptions. The existing building is situated towards the southern portion of the Site with a setback of between 160mm to 250mm to its southern boundary for a length of approximately 60 metres and along its western boundary for a length of approximately 23 metres, with a portion extending north towards the centre of the Site.

The Site includes vehicle access by way of four separate vehicle crossovers along Barkly Street and includes some vegetation that is scattered across the Site. The balance of the Site is concrete paving and used for car parking.

Historically, the Site was the subject of:

- Planning Permit No. TP128 which was approved at the direction of the Victorian Civil and Administrative Tribunal on 10 March 2016 for *"construction of a multi-level, mixed use building and the reduction of the car parking provision under Clause 52.06.*
- Planning Permit No. TP196/2019 which was approved at the direction of the Victorian Civil and Administrative Tribunal on 17 April 2020 for *"construction of a multi-storey building, including development of more than two dwellings on a lot, use of land for retail premises (other than adult sex product shop and gambling premises), and reduction in car parking).*

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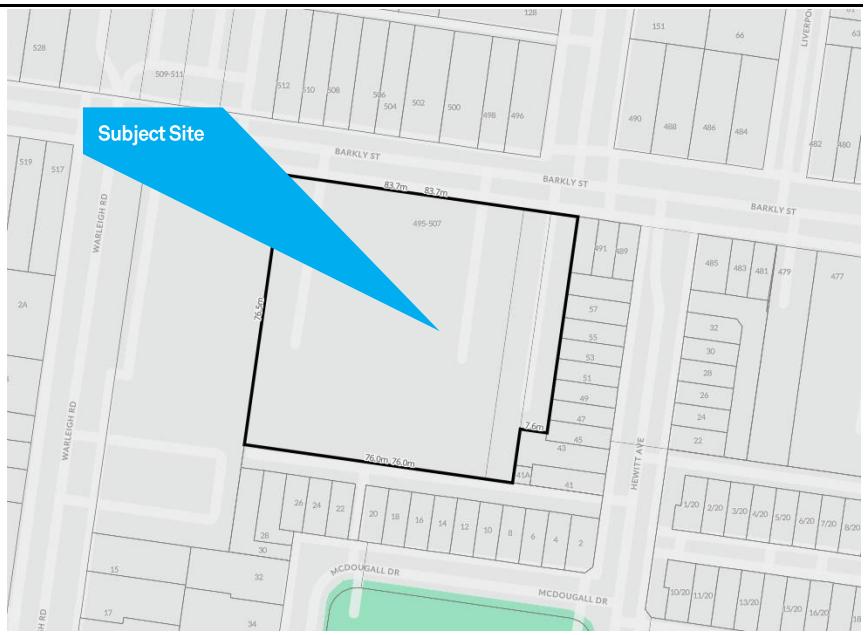
Figure 2.1
Cadastral Plan



2.2 Surrounding Area

Strategically, the Site is located in the West Footscray Neighbourhood Centre (the "Activity Centre") otherwise known as Barkly Village.

Barkly Village extends along Barkly Street and is fragmented with residential uses and other activities providing breaks between retail activities.

As outlined in the accompanying Need and Economic Impact Assessment, the *"...total retail floor space in the West Footscray NAC is estimated to be 7,600sqm".*

Clause 21.11-6 (West Footscray Neighbourhood Activity Centre) observes that:

- *The activity centre has an extended linear form, with sections of residential use creating a gap between the supermarket and Barkly Village. Further development of the activity centre should bridge the gaps in street activity along Barkly Street to consolidate the retail area and extend the shopfront character to the eastern end of the centre.*

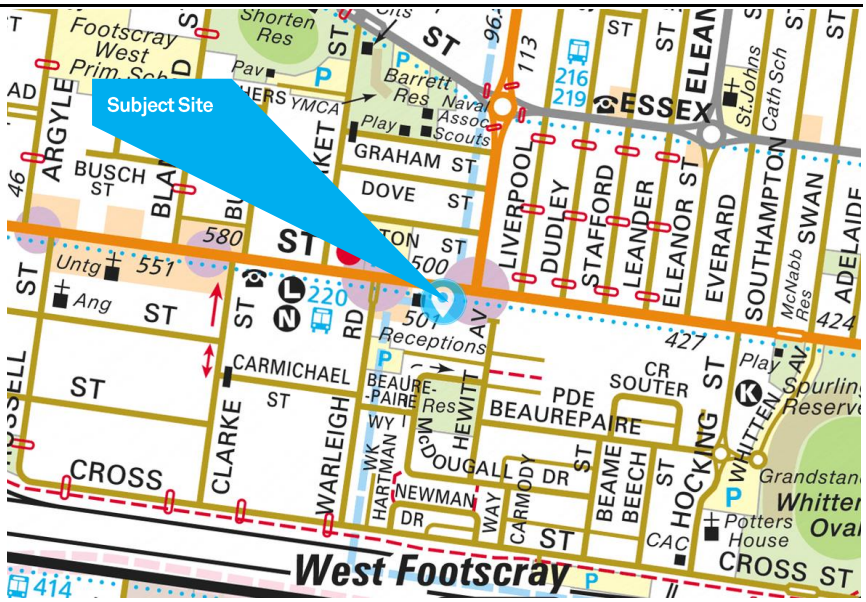
The area is also subject to the 'West Footscray Neighbourhood Plan' (WFNP), which was adopted by Council on 30 October 2018 and proposes to coordinate growth and development in the neighbourhood.

The plan forms the basis of Planning Scheme Amendment C162 which proposes (with relevance to the Site) to amend the Municipal Statement to reflect the WFNP and revise Schedule 7 to the Design and Development Overlay.

2 Subject Site and Surrounds

Figure 2.2
Locality Plan

Source: onlinemelways.com



Barkly Street is a two-lane road inclusive of bicycle lanes on either side. In addition to vehicles, Barkly Street is a nominated bus route with a bus stop located along the Site's frontage.

Barkly Street is also the identified for streetscape upgrades as illustrated in the *Streetscape Upgrades – Barkly Street, West Footscray*. The proposal seeks to introduce a refuge island at Barkly Street's intersection with Summerhill Road, a protective bicycle barrier and an in-lane bus stop with raised bicycle lane.

The immediate surrounds of the Site are described below:

- To the north is Barkly Street and on the opposite side of Barkly Street is a row of single storey dwellings.
- To the east is a row of three storey townhouses that are orientated towards Barkly Street and Hewitt Avenue, respectively. The townhouses fronting Hewitt Avenue include primary secluded private open space at first floor level, with a secondary area located at ground floor level.
- To the south is a row of three storey townhouses that front onto Mcdougall Drive. Immediately abutting the Site's southern boundary is a common driveway for the row of townhouses, which is approximately 6 metres wide. These townhouses include primary secluded private open space at first floor level.
- To the west is the IGA supermarket. There is car parking associated with the supermarket to its south and to its north (in a separate parcel on the opposite side of Barkly Street).

2 Subject Site and Surrounds

Figure 2.3
Aerial Photograph of Subject Site

Source: Landchecker.com.au

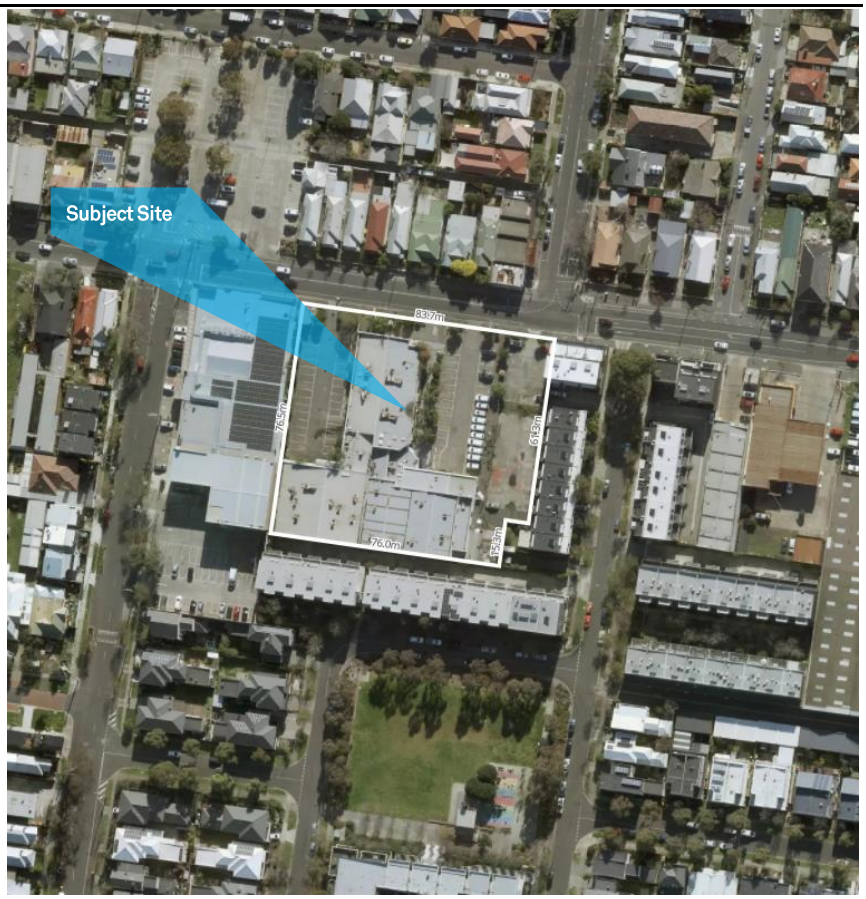


Figure 2.4
Aerial Photograph of Surrounding Area

Source: Landchecker.com.au

3 Statutory Planning Framework (Maribyrnong Planning Scheme)

3.1 Planning Policy Framework

The following clauses within the Planning Policy Framework are relevant to this application:

- Clause 11 Settlement
- Clause 11.01 Victoria
- Clause 11.03 Planning for places
- Clause 13 Environmental Risks and Amenity
- Clause 13.04 Soil Degradation
- Clause 13.05 Noise
- Clause 13.07 Amenity and Safety
- Clause 15 Built Environment and Heritage
- Clause 15.01 Built Environment
- Clause 17 Economic Development
- Clause 18 Transport
- Clause 18.01 Land use and transport
- Clause 18.02 Movement networks
- Clause 19 Infrastructure
- Clause 19.02 Community Infrastructure
- Clause 19.03 Development Infrastructure

A more detailed description of each of the abovementioned policies and how they relate to this application is provided below.

<u>Clause 11 – Settlement</u>

The objective of Clause 11.01-1S (Settlement) is *"to facilitate the sustainable growth and development of Victoria and deliver choice and opportunity for all Victorians through a network of settlements".*

Underpinning this objective are the following notable strategies:

- *Develop sustainable communities through a settlement framework offering convenient access to jobs, services, infrastructure, and community facilities.*
- *Deliver networks of high-quality integrated settlements that have a strong identity and sense of place, are prosperous and are sustainable by:*

- *Balancing strategic objectives to achieve improved land use and development outcomes at a regional, catchment and local level.*
- *Providing for appropriately located supplies of residential, commercial, and industrial land across a region, sufficient to meet community needs in accordance with the relevant regional growth plan.*
- *Develop compact urban areas that are based around existing or planned activity centres to maximise accessibility to facilities and services.*
- *Ensure retail, office-based employment, community facilities and services are concentrated in central locations.*
- *Ensure land that may be required for future urban expansion is not compromised.*

The objective of Clause 11.03-1S (Activity Centres) is *"to encourage the concentration of major retail, residential, commercial, administrative, entertainment and cultural developments in activity centres that are highly accessible to the community".*

Underpinning this objective are the following notable strategies:

- *Build up activity centres as a focus for high-quality development, activity and living by developing a network of activity centres that:*
  - *Comprises a range of centres that differ in size and function.*
  - *Is a focus for business, shopping, working, leisure, and community facilities.*
  - *Maximises choices in services, employment, and social interaction.*

Clause 13.05 – Noise

The objective of Clause 13.05-1S (Noise Management) is *"to assist the management of noise effects on sensitive land uses".*

Clause 15 – Built Environment and Heritage

Clause 15 is a policy that recognises *"...the role of urban design, building design, heritage and energy and resource efficiency in delivering liveable and sustainable cities, towns and neighbourhoods".*

It is also a policy to *"...ensure all land use and development appropriately responds to its surrounding landscape and character, valued built form and cultural context".*

The objective of Clause 15.01-1S (Urban Design) is *"to create urban environments that are safe, healthy, functional and enjoyable and that contribute to a sense of place and cultural identity".*

The objective at Clause 17.01-1R is *"to create a distinctive and liveable city with quality design and amenity".*

The objective at Clause 15.01-2S (Building design) is *"to achieve building design and siting outcomes that contribute positively to the local context, enhance the public realm and support environmentally sustainable development".*

The objective at Clause 15.01-4S (Healthy neighbourhoods) is *"to achieve neighbourhoods that foster healthy and active living and community wellbeing".*

Underpinning this objective is the strategy to *"create a city of 20 minute neighbourhoods, that give people the ability to meet most of their everyday needs within a 20 minute walk, cycle or local public transport trip from their home".*

Clause 17 – Economic Development

Clause 17 seeks to *"...provide for a strong and innovative economy, where all sectors are critical to economic prosperity".*

The objective of Clause 17.01-1S (Diversified economy) is *"to strengthen and diversify the economy".*

The objective of Clause 17.02-1S (Business) is *"to encourage development that meets the community's needs for retail, entertainment, office and other commercial services".*

Clause 18 – Transport

Clause 17 seeks to *"...ensure a safe, integrated and sustainable transport system...".*

The objective of Clause 18.01-1S (Land use and transport integration) is *"to facilitate access to social, cultural and economic opportunities by effectively integrating land use and transport",*

3.2 Local Planning Policy Framework

The following clauses within the Local Planning Policy Framework are relevant to this application.

- Clause 21.01 Municipal Strategic Statement
- Clause 21.02 Municipal Profile
- Clause 21.03 Council Vision
- Clause 21.04 Settlement
- Clause 21.06 Built Environment and Heritage
- Clause 21.08 Economic Development
- Clause 21.09 Transport
- Clause 21.10 Community and Development Infrastructure
- Clause 21.11 Local Areas
- Clause 21.12 Reference Documents
- Clause 22.08 Licensed Premises

A more detailed description of each of the abovementioned policies and how they relate to this application is provided below.

Clause 21.01 – Municipal Strategic Statement

Clause 21.01 provides the key policy objectives and strategies for land use planning in the municipality. Those in which are relevant are detailed below.

Clause 21.02 – Municipal Profile

Clause 21.02 sets out the profile of the municipality. In summary, the following is outlined in Clause 21.02:

- *Maribyrnong is becoming more popular with the addition of new residential development.*
- *Activity centres are key locations for employment, transport, retailing, businesses, community services and increasingly are locations for higher density forms of housing.*

Clause 21.03 – Council Vision

Clause 21.03 sets out Council's vision. Its vision with regard to land use is outlined below:

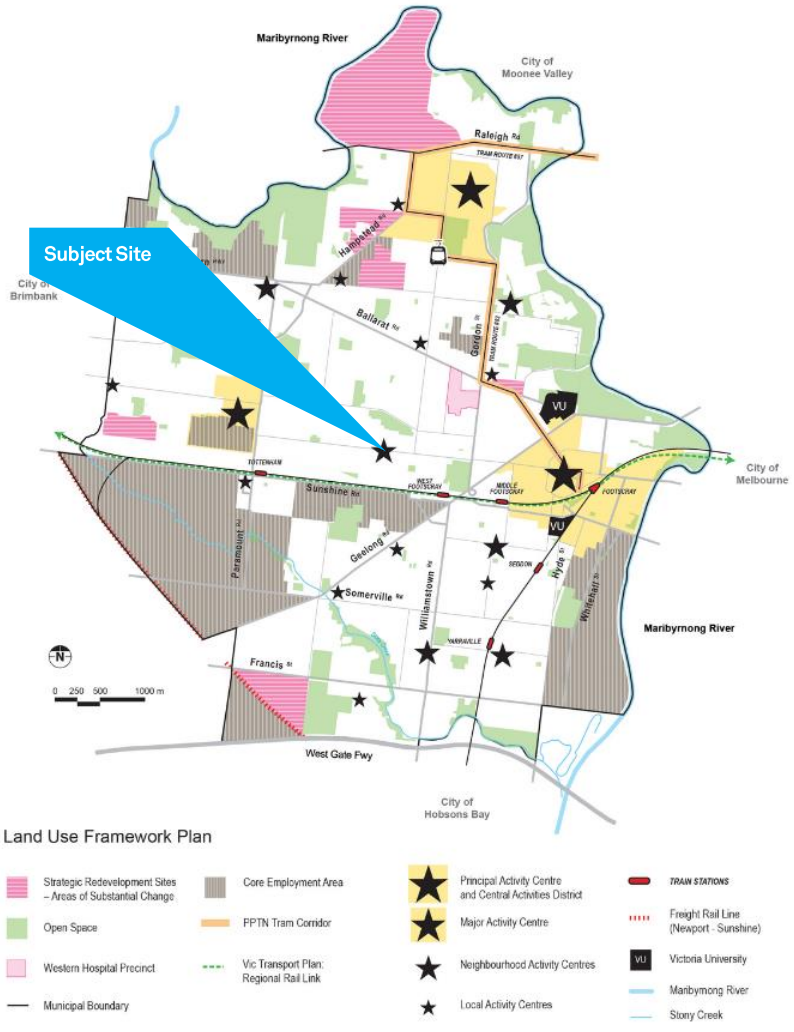
- *By 2030 the city of Maribyrnong will be a popular inner city municipality with a vibrant and diverse community, a strong identity*

and a prosperous modern economy. The city's adaptation to climate change will make it more environmentally sustainable and more resilient to future changes. Significant redevelopment will transform the city and give it a greater residential character. The city's valued heritage and neighbourhood character will be complemented by new development on key redevelopment sites and within activity centres. More people will be living and working in the city attracted by its choice of housing, accessibility and employment opportunities. A broad economic base will strengthen local employment through a strong retail sector, new offices and business services, a growing arts base and the renewal of the city's industrial areas. New facilities and infrastructure will meet the needs of the community. The network of open spaces and trails will be enhanced and offer an improved range of recreational facilities and activities for the community, while the Maribyrnong River will be more accessible and offer a range of recreational, cultural and tourism experiences.

The Land Use Framework Plan also identifies Barkly Village as a Neighbourhood Activity Centre.

Figure3.1
Land Use Framework Plan

Clause 21.03 of the Maribyrnong Planning Scheme



Clause 21.04 – Settlement

Clause 21.04-1 (Activity centre planning) sets out the extent of activity centres within the municipality. It identifies Barkly Village as a Neighbourhood Activity Centre.

The objective of Clause 21.04-1 is *"to create an activity centre network with a variety of easily accessible, pleasant and safe places where people can gather, socialise, shop, work, live, be entertained and make use of many kinds of community and leisure services without having to travel far".*

Underpinning this objective are the following strategies:

- *Maintain and enhance the viability of the network of centres by ensuring any expansion of retailing floorspace is appropriate for the centre's place in the hierarchy.*
- *Protect areas adjacent to activity centres from negative impacts.*

Another objective of Clause 21.04-1 is *"to develop centres in accordance with their place in the activity centre hierarchy".*

Underpinning this objective are the following strategies:

- *Encourage new buildings in activity centres to provide for a mix of uses.*
- *Encourage residential uses above and to the rear of business uses.*
- *Ensure new developments in activity centres respect the character, form, and height of buildings within any adjoining Residential 1 zoned land on or within 10 metres of the site boundaries.*
- *Discourage uses or new developments in activity centres which will be incompatible with a continued residential presence whether through scale, image or off-site environmental or amenity impacts.*

Clause 21.06 – Built Environment and Heritage

Clause 21.06 sets out objectives and strategies relating to urban design, environmentally sustainable design, and heritage.

Relevant to this application, the following objectives and strategies are outlined below:

- *To support a sense of place and community in activity centres.*
- *Encourage facilities, services and places in activity centres that support the health and wellbeing of residents, visitors, and workers.*
- *Maintain and enhance the built form character which contributes to each activity centre's individual identity.*

- *Require appropriate development responses to gateway locations within activity centres.*
- *To create activity centres with a high quality public realm.*
- *Provide friendly and safe access pathways, good lighting, quality landscaping, street furniture, conveniences, and spaces for people to meet.*
- *Encourage appropriate weather protection in front of buildings in centres with a strong convenience retailing role.*
- *Encourage day-to-day retail uses on the ground floor in all centres with a defined convenience retailing role.*
- *Improve the appearance, comfort, and safety of public spaces.*
- *Ensure landscaping is included to provide shade and visual relief in both pedestrian networks and car park areas.*
- *To provide sustainable building design.*
- *To improve stormwater quality.*
- *To ensure that water resources are managed in a sustainable manner.*

Clause 21.08 – Economic Development

Clause 21.08 sets out objectives and strategies relating to retail and office.

Relevant to this application, the following objectives and strategies are outlined below:

- *To ensure that retail premises are developed in appropriate locations.*
- *To ensure that offices are developed in appropriate locations.*

Clause 21.09 – Transport

Clause 21.09 sets out objectives and strategies relating to all various modes of transport.

Relevant to this application, the following objectives are outlined below:

- *To support and promote public transport.*
- *To support and promote cycling and walking.*
- *To develop a safe, efficient, and accessible transport network.*

Clause 21.10 – Community and Development Infrastructure

Clause 21.10 sets out objectives and strategies relating to community infrastructure.

Relevant to this application, the following objectives are outlined below:

- *To provide facilities which meet the needs of the community.*
- *To ensure medical centres are developed in appropriate and accessible locations.*
- *To ensure developers contribute towards the provision of community facilities.*

Clause 21.11-6 – Local Areas – West Footscray Neighbourhood Activity Centre

Clause 21.11-6 defines the West Footscray Neighbourhood Activity Centre as follows:

- *The West Footscray Activity Centre, also known as Barkly Village, is recognised as the heart of the West Footscray community. The activity centre has good access to public transport, includes community facilities and has links to nearby open space and recreation facilities. Commercial uses within the activity centre meet the neighbourhood needs for convenience shopping and also provide specialised food retail, restaurants, and services of regional interest.*
- *The activity centre has an extended linear form, with sections of residential use creating a gap between the supermarket and Barkly Village. Further development of the activity centre should bridge the gaps in street activity along Barkly Street to consolidate the retail area and extend the shopfront character to the eastern end of the centre.*

Relevant to this application, the objectives and strategies are outlined below:

- *To consolidate and enhance the role of the centre.*
- *Strengthen street level activity along Barkly Street particularly where residential buildings currently form sections of passive site frontages.*
- *Encourage a mix of businesses within the Village, so as to create an active streetscape both night and day.*
- *Accommodate additional housing on the upper levels of new mixed use developments along Barkly Street.*

- *To encourage a built form that is consistent with the preferred character of the centre.*
- *Encourage a preferred character for development along Barkly Street that is a consistent streetscape of two to three storeys with no front or side setbacks.*
- *Encourage a fine grained building width at a scale that respects the adjacent residential character.*
- *Ensure development along Barkly Street utilises a vertical mix of uses prioritising retail/office at ground level with residential above.*
- *To enhance the public realm.*
- *Promote the development of new residential buildings that contribute to the natural surveillance of the street through large windows, balconies, low fences and appropriate setbacks.*
- *Upgrade the urban pedestrian area by creating a high quality pavement treatment, kerb outstands where possible, safe and DDA compliant intersections, safe pedestrian crossing points and good lighting.*
- *Encourage existing and new retail buildings to provide canopies that extend the width of the footpath to provide shade and shelter along the activity centre paths.*
- *Support the upgrade of the appearance of commercial buildings along Barkly Street to add to the viability and vitality of the retail street.*

Figure3.2
West Footscray Neighbourhood Activity Centre Framework Plan

Source: Clause 21.11-6 of the Maribyrnong Planning Scheme

Clause 22.08 – Licensed Premises Policy

This policy applies to all planning permit applications pursuant to Clause 52.27.

The objectives of this policy are:

- *To effectively manage amenity conflicts between licensed premises and other uses.*
- *To ensure licensed premises are appropriate to their locations.*
- *To ensure licensed premises located in activity centres are appropriate to the role and vision of the centre.*

- *To encourage an appropriate mix of licensed premises relative to other commercial, retail, residential and community uses.*
- *To ensure licensed premises will not generate unreasonable noise impacts on the surrounding area.*
- *To ensure the operating hours and patron numbers of licensed premises will not unreasonably impact on the amenity of the surrounding area.*
- *To encourage good venue design providing a high level of public safety and surveillance.*
- *To support reasonable opportunities for licensed premises to trade.*

Clause 22.08 is a policy to:

- *Encourage licensed premises that complement the objectives and strategies for the following activity centres – Footscray.*
- *Consider the proximity of licensed premises to residential uses and the need for noise attenuation and other design or management measures.*
- *Encourage licensed premises to be located in areas where parking, public transport and availability of taxis adequately service patronage of the premises.*
- *Incorporate safe design principles outlined in the Design Guidelines for Licensed Venues.*
- *Encourage the design of licensed premises to result in an active street frontage and provide opportunity for surveillance of patrons as they enter and leave the premises.*
- *Consider the need for noise attenuation or other design measures having regard to the site context.*
- *Ensure on-site acoustic attenuation measures are implemented where noise emissions are likely to unreasonably impact on the surrounding area.*
- *Ensure the number of patrons does not unreasonably affect the amenity of the surrounding area.*
- *Encourage venue size and patron numbers that appropriately respond to the role of the Activity Centre or zone.*

3.3 Zoning

The subject site is located within the Mixed-Use Zone. The purpose of the MUZ is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To provide for a range of residential, commercial, industrial, and other uses which complement the mixed-use function of the locality.*
- *To provide for housing at higher densities.*
- *To encourage development that responds to the existing or preferred neighbourhood character of the area.*
- *To facilitate the use, development, and redevelopment of land in accordance with the objectives specified in a schedule to this zone.*

Pursuant to Clause 32.04-2 (table of uses):

- Use of the land for the purpose of a 'Food and Drink Premises' is a 'Section 1 – Permit not required' use subject to the following condition being satisfied:
  - *The leasable floor area must not exceed 150 square metres.*
- Use of the land for the purpose of 'Medical Centre' is a 'Section 1 – Permit not required' use subject to the following condition being satisfied:
  - *The gross floor area must not exceed 250 square metres.*
- Use of the land for the purpose of 'Office' (other than Medical centre) is a 'Section 1 – Permit not required' use subject to the following condition being satisfied:
  - *The leasable floor area must not exceed 250 square metres.*
- Use of the land for the purpose of 'Shop' (other than Adult sec product shop) is a 'Section 1 – Permit not required' use subject to the following condition being satisfied:
  - *The leasable floor area must not exceed 150 square metres.*
- Use of the land for the purpose of 'Leisure and Recreation' (other than Informal outdoor recreation) is a 'Section 2 – Permit required' use.

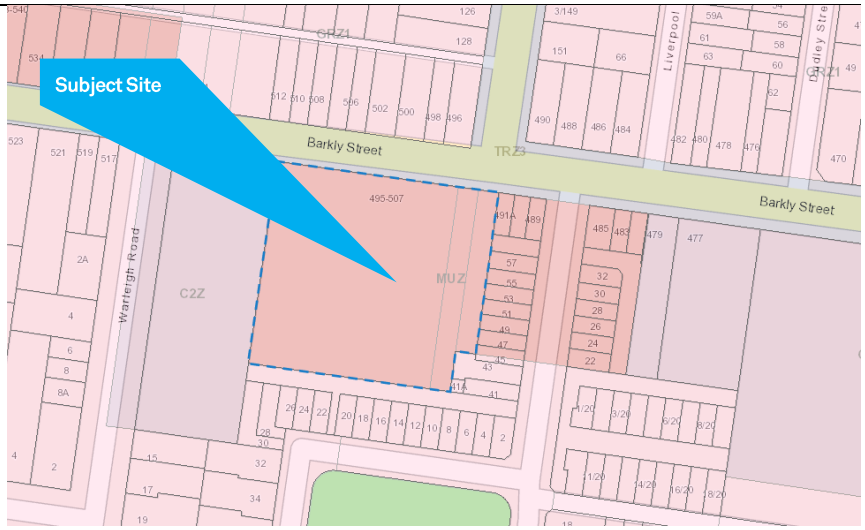
Clause 32.04-10 relates to 'Buildings on lots that abut another residential zone' and states the following:

- *Any buildings or works constructed on a lot that abuts land which is in a General Residential Zone, Neighbourhood Residential Zone,*

Residential Growth Zone, or Township Zone must meet the requirements of Clauses 55.03-5, 55.04-1, 55.04-2, 55.04-3, 55.04-5 and 55.04-6 along that boundary.

Figure3.3
Zoning Plan

Source:



3.4 Overlays

The Site is affected by the following overlays:

- Development Contributions Plan Overlay (Schedule 2);
- Design and Development Overlay (Schedule 7); and
- Environmental Audit Overlay

Development Contributions Plan Overlay (Schedule 2)

The purpose of the DCPO is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To identify areas which require the preparation of a development contributions plan for the purpose of levying contributions for the provision of works, services and facilities before development can commence.*

Design and Development Overlay (Schedule 7)

The purpose of the DDO is:

- *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To identify areas which are affected by specific requirements relating to the design and built form of new development*

Pursuant to Clause 43.02-2 (Buildings and works) *"a permit is required to construct a building or construct or carry out work".*

Schedule 7 to the DDO refers to '491-507 Barkly Street, Footscray'. The design objectives are:

- *To ensure that residential development incorporates appropriate design measures to protect residents from any adverse amenity impacts from existing uses in the area.*
- *To ensure the development of the land is consistent with the conditions of any Statement of Environmental Audit issued for the land.*
- *To ensure the development of the land is consistent with the background document West Footscray Urban Design Framework (2008).*
- *To ensure the design of new development demonstrates high standards of environmental sustainability.*
- *To ensure the design of new development incorporates safe and convenient pedestrian, cycle, and vehicular access points.*

An application for a permit to construct a building or construct or carry out works must demonstrate the following:

- *Inclusion of any design recommendations of the adverse amenity impact assessment required by Clause 5.0 of this Schedule;*
- *Consistency with any conditions of a Statement of Environmental Audit issued for the land;*
- *Consistency with the West Footscray Urban Design Framework (2008), including the requirements detailed in Clause 5.0 of this Schedule;*
- *Overall high standards of environmental sustainability; and*
- *Safe and convenient pedestrian, cycle, and vehicular access points.*
- *A permit is not required under this overlay for works required to remediate the land in accordance with or for the purpose of obtaining a Certificate or Statement of Environmental Audit under the Environment Protection Act 1970.*

Clause 5 of Schedule 7 to the DDO sets out the application requirements. These are noted below:

- *An adverse amenity impact assessment consisting of a report(s) prepared by a suitably qualified person(s) identifying all potential adverse amenity impacts from nearby existing uses including, but*

not limited to any adverse amenity impacts resulting from the existing use at 509-511 Barkly Street, Footscray.

The report(s) must include specific design recommendations to address any potential adverse amenity impacts identified.

- *A report demonstrating that the proposed development is consistent with the West Footscray Urban Design Framework (2008), including the following requirements:*
    - *Along the Barkly Street frontage:*
        - *Provide two to three storey development at a scale that respects the existing residential character opposite the land;*
        - *Provide a fine grain building width at ground level;*
        - *Provide a zero setback along the street frontage at ground level;*
        - *Encourage active street frontages containing a high level of transparent glazing;*
        - *Provide consistent verandas to ensure weather protection over the footpath; and*
        - *Encourage passive surveillance of the street from all levels of the development.*
    - *On the balance of the land:*
        - *Development up to four storeys in height.*
    - *For the complete development:*
        - *An overall signage strategy that integrates proposed signage into the building design*
    - *A report showing that the design of the development demonstrates high standards of environmental sustainability. The report should assess the design of the proposed development in the following areas:*
        - *Energy efficiency;*
        - *Measures to reduce or manage car parking demand and encourage sustainable alternative transport modes;*
        - *Integrated water management;*
        - *Waste minimisation;*

- *Building materials;*
- *Landscaping;*
- *Indoor environmental quality, including the use of natural lighting; and*
- *Any other matter impacting on the environmental sustainability of the proposed design.*

A response to these provisions is provided in Section 6.3 of this report.

3.5 Particular Provisions

The following particular provisions apply to this application:

- Clause 52.06 Car Parking
- Clause 52.27 Licensed Premises
- Clause 52.29 Land Adjacent to the Principal Road Network
- Clause 52.34 Bicycle Facilities

Clause 52.06 – Car Parking

Clause 52.06 applies to a new use and sets out the minimum car parking requirements for various land uses.

The purpose of Clause 52.06 is:

- *To ensure that car parking is provided in accordance with the Municipal Planning Strategy and the Planning Policy Framework.*
- *To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.*
- *To support sustainable transport alternatives to the motor car.*
- *To promote the efficient use of car parking spaces through the consolidation of car parking facilities.*
- *To ensure that car parking does not adversely affect the amenity of the locality.*
- *To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.*

Clause 52.06-5 sets out the minimum car parking requirements for various land uses. Relevant to this application, the following is noted:

- Use of the land for the purpose of a 'Child Care Centre' requires 0.22 car parking spaces per child.

- Use of the land for the purpose of a 'Food and Drink Premises' requires 3.5 car parking spaces to each 100sqm of leasable floor area.

- Use of the land for the purpose of 'Office' requires 3 car parking spaces to each 100sqm of net floor area.

- Use of the land for the purpose of 'Shop' requires 3.5 car parking spaces to each 100sqm of leasable floor area.

- Use of the land for the purpose of 'Supermarket' requires 5 car parking spaces to each 100sqm of leasable floor area.

Clause 52.06-5 does not provide a minimum statutory car parking requirement for 'Leisure and Recreation'.

The proposal generates a statutory requirement to provide 258 car parking spaces.

As noted in the accompanying Traffic Report prepared by Ratio, *"the proposed provision of 278 on-site car parking spaces is either in accordance with or exceeds the parking requirement for each of the proposed uses and is therefore considered acceptable."*

Clause 52.27 – Licensed Premises

The purpose of Clause 52.27 is:

- *To ensure that licensed premises are situated in appropriate locations.*

- *To ensure that the impact of the licensed premises on the amenity of the surrounding area is considered.*

Pursuant to Clause 52.27, *a permit is required to use land to sell or consume liquor if a license is required under the Liquor Control Reform Act 1988."*

One of the proposed retail tenancies will be used for the purpose of 'Bottle Shop' and as such, permission is sought for the sale of liquor pursuant to Clause 52.27 of the Maribyrnong Planning Scheme.

Clause 52.39 – Land Adjacent to the Principal Road Network

Clause 52.29 applies to land adjacent to a road in the Transport Zone 2.

The purpose of Clause 52.29 is:

- *To ensure appropriate access to the Principal Road Network or land planned to form to part of the Principal Road Network.*

- *To ensure appropriate subdivision of land adjacent to Principal Road Network or land planned to form part of the Principal Road Network.*

Pursuant to Clause 52.29-2 (Permit Requirement), a permit is required to:

- *Create or alter access to a road in a Transport Zone 2*

Clause 52.34 – Bicycle Facilities

Clause 52.34 sets out the minimum bicycle parking requirements for various uses.

The purpose of Clause 52.34 is:

- *To encourage cycling as a mode of transport.*
- *To provide secure, accessible, and convenient bicycle parking spaces and associated shower and change facilities.*

Relevant to this application, the following is noted:

- Use of the land for the purpose of a 'Medical Centre' requires 1 space to each 8 practitioners, for employees, and 1 to each 4 practitioners for visitors.
- Use of the land for the purpose of a 'Food and Drink Premises' requires 3.5 car parking spaces to each 100sqm of leasable floor area.
- Use of the land for the purpose of 'Shop' requires 3.5 car parking spaces to each 100sqm of leasable floor area.
- Use of the land for the purpose of 'Supermarket' requires 5 car parking spaces to each 100sqm of leasable floor area.
- Use of the land for the purpose of 'Retail Premises' requires 1 space to each 300sqm of leasable floor area, for employees, and 1 space to each 500sqm of leasable floor area, for visitors.

Clause 52.34-5 does not set out a statutory bicycle parking requirement for a 'Child Care Centre', 'Office' (below 1000sqm), 'Shop' (below 1000sqm).

An assessment of Clauses 52.06, 52.29 and 52.34 is provided within the accompanying Traffic Report prepared by Ratio, dated 12 October 2022.

3.6 Planning Scheme Amendment C162

Planning Scheme Amendment C162 proposes a variety of changes to the Maribyrnong Planning Scheme to implement the directions of the West Footscray Neighbourhood Plan 2018 (WFNP). Planning Scheme Amendment C162 was reviewed by an independent Planning Panel (the "Panel") at the appointment of the Minister for Planning. The Panel provided their report on 2 May 2022 recommending Council to adopt the amendment with some changes. Council will consider the Panel's recommendation in October 2022.

In summary, PS Amendment C162 proposes to:

- *update the Municipal Strategic Statement and introduce the plan as a reference document.*
- *update various rezonings, including extending the commercial zone in the West Footscray Neighbourhood Activity Centre.*
- *introduce new design requirements in the activity centre, Barkly Street East (northern side) and West Footscray Railways Station precincts to guide future development.*
- *introduce policy to guide the potential transition of Barkly Street East (southern side) to mixed commercial and residential use (currently used as service industries and car yards).*
- *identify sites of existing or potential contamination and apply provisions to manage their remediation and redevelopment.*

Council did not propose the Site as part of PS Amendment C162, however the Panel agreed with our client's submissions and evidence that Council should rezone the Site from the Mixed-Use Zone to Commercial 1 Zone.

More specifically, the Panel provided the following commentary as identified between Pages 24-26 in the Panel Report, dated 2 May 2022:

- *While the Panel understands Council's reasoning for identifying investigation sites, it is surprising that the site was not subject to further review as part of the WFNP given the overwhelming physical and strategic attributes of the land such as its size, single ownership, and central location. The Panel considers this strengthens the case for consideration of whether rezoning of the land is appropriate.*
- *A key objective of the WFNP is to support the economic role of Barkly Village as a NAC. The WFNP proposes to strengthen the current land use pattern to provide consistent and complementary zoning which delivers new residential and commercial opportunities. Economic development is a key driver of the Amendment.*

- *The Panel accepts that the MUZ allows for a full line supermarket (over 150 square metres) with planning approval, however it concurs with Mr Negri's evidence that the MUZ is residential in nature and may facilitate outcomes that contradict the WFNP. The Panel agrees with Fabcot that the MUZ is not the optimal zone for delivering the economic aspirations of the WFNP on the Fabcot land.*

- *The Panel concludes:*

    - *It is appropriate for the Panel to consider the proposed rezoning of the Fabcot Land.*

    - *There is sufficient justification to support the rezoning of the Fabcot Land from MUZ to C1Z.*

    - *It is appropriate to rezone the Fabcot Land to C1Z, subject to Council satisfying itself that notice requirements are met.*

- *The Panel recommends:*

    - *Rezone 495-507 Barkly Street, West Footscray from the Mixed-Use Zone to the Commercial 1 Zone, subject to Council satisfying itself that notice requirements have been met.*

In relation to built form, Council proposed amendments to Schedule 7 to the DDO to introduce mandatory built form controls that relate to overall maximum building height and street setback, as well as other new built form controls relating to side and rear setbacks and the public realm interface, in accordance with the WFNP 2018. The Panel subsequently recommended the removal of all mandatory built form controls.

At the Council meeting on 18 October 2022, Council considered a report from the officers recommending adoption of the Amendment.

4 Urban Context and Analysis

4.1 Opportunities and Constraints

From an analysis of the Site, its surrounding context and the applicable provisions of the Maribyrnong Planning Scheme, the following opportunities have been identified in association with the redevelopment of the site:

- The Site is located within Barkly Village that enjoys access to a range of urban infrastructure including transport, retail, community infrastructure and open space.
- Given the Site's strategic location within Barkly Village that is situated amongst the residential neighbourhood of West Footscray, there is an opportunity to produce a development that increases local employment opportunities and a place where people can gather, socialise, shop, work and enjoy leisure services without having to travel far.
- Given the zoning of the Site, there is the potential to develop a bona-fide mixed use building.
- The independent panel employed by the Minister for Planning suggested that the Site be rezoned from a Mixed-Use Zone to Commercial 1 Zone.
- The emerging character and strategic direction for the eastern portion of Barkly Village anticipates more retail focused use and development
- The overall size of the Site noting that it is currently developed with an unoccupied building which is a significant under-utilisation of a strategic land resource.
- The need for a full-line supermarket in this locality, as noted in the accompanying Need and Economic Assessment prepared by Deep End.
- The Site accommodates existing vehicle access from Barkly Street and there is an opportunity to utilise the existing intersection at Summerhill Road and Barkly Street.
- The existing conditions make a poor contribution to the public realm, highlighting that there is the opportunity to significantly change these conditions whilst contributing to amenity and character.
- The Site is located in the eastern portion of the West Footscray Neighbourhood Activity Centre and there is an opportunity to produce a high-quality built form outcome that celebrates its locality as a gateway site.
- There is an opportunity to strengthen the level of activity along Barkly Street and to improve the pedestrian experience.

- The Site has a wide frontage to Barkly Street and has the ability to contribute to the retail edge and activity within the shopping street in a meaningful way.

Constraints associated with the redevelopment of the subject land that have been considered in the design response include:

- Ensuring that any off-site amenity impacts to existing development on nearby land, including the adjoining dwellings, are appropriately managed.
- Ensuring that the ground floor frontage to Barkly Street is designed to improve the pedestrian experience.
- Managing ingress and egress into the development, including the loading, and unloading of vehicles.

4.2 Design Response

Having regard to the preceding analysis, the design response adopts the following site planning and built form strategies:

- The Site is large and well-proportioned enabling an efficient site layout and vehicle access strategy.
- Vehicle access is secured by way of a 'fourth leg' to the existing Barkly Street / Summerhill Road signalised intersection, parking is contained in a basement and loading is consolidated in an enclosed environment.
- The provision of a relatively high two-storey building, which is consistent with the aspirations of Clause 21.11-6 that prefers development to be between two and three storeys.
- The provision of a modulated presentation to Barkly Street that break up the width of the Site's frontage.
- Provision of a mix of uses that will generate employment and offer services close to where people live.
- The proposed mix of uses will contribute to the economic prosperity of the municipality.
- The proposal provides for a full line Supermarket in an under-provided area.
- Within the mixed-use format, pursue 'Community' focused uses on first floor including a medical centre and gymnasium, and office accommodation that would be suited to local 'start-up' businesses.
- Managing of the residential interfaces through building design, setbacks, landscaping, and application of strict acoustic mitigation resources.

- The proposal will enhance the public realm through the provision of active retail uses that are set back from Barkly Street, which in turn widens the pedestrian footpath and will be a significant improvement to the current conditions of the Site.

- The proposal provides for weather protection over the footpath through the provision of a canopy.

- The proposal employs a range of materials and finishes, coupled with a varying mix of built form elements that contribute to a high-quality built form outcome on a parcel of the land that is essentially the gateway to the Barkly Village.

5 Proposal

5

As illustrated in the plans prepared by I2C, the application proposes the redevelopment of the land for the purpose of a mixed-use building.

The key components of the proposal include:

- two-level basement containing 278 car parking spaces, 10 motorcycle spaces, 23 bicycle spaces and associated end-of-trip facilities, a lift core and general building services.
- 3686sqm ground floor Supermarket that will be occupied by Woolworths.
- nine ground floor retail tenancies, including one 'Bottle Shop' comprising a total area of 715.5sqm.
- 368sqm of Office at first floor.
- 1485sqm Child Care Centre at first floor.
- 425sqm Medical Centre at first floor.
- 384sqm Restricted Recreational Facility.

Having regard to all the transport, traffic, waste and loading and unloading related matters, the proposal includes:

- a new double-width vehicle crossover towards the east creating a fourth leg at the intersection of Barkly Street and Summerhill Road, that will provide access to an at grade loading dock for the proposed Supermarket, with a central ramp providing access to the two basement levels.
- a total of 278 car parking spaces spread across two basement levels, including six DDA car parking spaces, four car parking spaces for families comprising prams and five car parking spaces for collection of online orders from the proposed Supermarket.
- three separate waste enclosures for the various proposed uses which are located in and adjacent to the loading dock area, respectively.

Having regard to the proposed built form, the proposal is:

- set back between zero and 2.78 metres from Barkly Street at ground floor.
- set back 1.64 metres from the east at ground floor.
- set back zero metres from the southern boundary for a length of approximately 60 metres at ground floor.
- set back 1.21 metres from the western boundary at ground floor.

- set back 4.826 metres from Barkly Street at first floor.
- set back 17.54 metres from the east at first floor.
- set back 25.25 metres from the south at first floor.
- set back 1.21 metres from the west at first floor.
- two storeys in overall height with a maximum height of 11.51 metres.

Figure5.1
Visualisation 1

Source: i2C Architects

Figure5.2
Visualisation 2

Source: i2C Architects

6 Planning Assessment

6.1 Preamble

An assessment of the proposed development requires an analysis of the following key matters:

- The strategic support for the proposed development having regard to the State and Local Planning Policy Framework;
- Built form, and how the proposal responds to the applicable planning policy framework, including Schedule 7 to the DDO;
- Management of the residential interfaces to the east and south;
- Traffic, car parking and access considerations; and
- Sustainability.

An assessment of each of these matters is set out in the following sections.

6.2 Strategic & Policy Considerations

The subject site is situated in the West Footscray Activity Centre which is recognised as the heart of the West Footscray community.

It is well-placed to accommodate a range of retail / commercial uses and positively responds to the policy setting of Clauses 17.01-1S (Diversified Economy), 17.02-1S (Business), 21.09 (Economic Development) and Clause 32.04 (Mixed-Use Zone) of the Maribyrnong Planning Scheme, as well as the aspirations for Planning Scheme Amendment C162 for the following reasons:

- The Site is situated within a Mixed-Use Zone which encourages commercial development.
- The proposed uses are consistent with those present in the Activity Centre, will support the needs of existing and future residents, and will create a sense of place and community.
- The proposed bottle shop is appropriate given its setting within an activity centre and is consistent with the objectives and strategies for the West Footscray Activity Centre consistent with Clause 22.08-1. The proposed bottle shop is also located within the development complex and concealed from the adjoining residential properties, as well as primary frontage of the development.
- The Site forms part of the 'West Footscray Neighbourhood Plan' and has been nominated for public realm 'gateway' improvements given its siting towards the far east of Barkly Village.
- The proposal will strengthen street level activity through the provision of active uses at ground floor coupled with a building setback that ultimately provides for a widened pedestrian footpath. This will also enhance the pedestrian experience in what is described to be the gateway to the Activity Centre.

- The proposal provides for a diversity of uses to create an active streetscape at both night and day.

- The proposal will provide for a greater proportion of employment within the immediate and surround area that will support the vibrancy and vitality of the activity centre.

- The proposal will reinforce the Activity Centre as a commercial centre that meets the needs of the community.

- The proposal is consistent with the aspirations of the 'West Footscray Neighbourhood Plan' in so far that it encourages retail and commercial space due to an increasing population of the area.

- The independent panel appointed by the Minister for Planning recommend that the Site be rezoned from Mixed-Use to Commercial 1, which would reinforce the Site's commercial nature being within a Neighbourhood Activity Centre.

- The proposal contributes to the development of a network of activity centres linked by public transport and advances the concept of a 20-minute neighbourhood.

- The proposal will contribute to the establishment of a vibrant Neighbourhood Activity Centre.

- The proposal will assist in bridging the gap in street activity along Barkly Street that in turn, will enhance the pedestrian level shopping experience.

Ultimately, the proposal will enhance the role of the West Footscray Neighbourhood Activity Centre, strengthen the retail role and function of the centre, contribute to the street level activity along this part of Barkly Street and contribute to the 20-minute neighbourhood concept.

Furthermore, it goes without saying that the economic benefits of such a proposal will be significant. Supporting this aspect of the proposal is the accompanying Need & Economic Impact Assessment (the "Report") prepared by Deep End Services.

The Report identifies that provision for a full line Supermarket in this locality can be supported in addition to the economic advantages of such a use, including increased employment opportunities both during and post construction, and the retention of escape spending and encouragement of cross visitation to other existing tenants within Barkly Village,

The Report otherwise concludes the following:

- *There is currently a significant undersupply of supermarket floorspace within the inner western suburbs of Melbourne which*

are centred on West Footscray but include Kingsville and Maidstone.

- *The proposed development will introduce a fullline Woolworths supermarket within the West Footscray NAC which will largely offset the undersupply while also introducing a small number of specialty tenants, a gym, medical centre, and commercial office floorspace.*
- *These are all uses which will enhance the appeal of the West Footscray NAC and will do so within a setting with convenient access and parking which will help to retain escape spending and encourage cross-visitation to other existing tenants within the NAC.*
- *Forecast one-off impacts on centres due to the proposed development would all be within reasonable bounds and would not upset the efficient and ongoing functioning of these centres.*
- *On the other hand, the proposed development will provide 175 direct FTE jobs and 155 indirect FTE local jobs during the construction phase as well 253 ongoing direct and indirect FTE jobs in the local economy after completion.*
- *Additional economic benefits would arise due to the activation of a vacant site and associated increase in rates, taxes and charges.*

6.3 Built Form and Public Realm Considerations

The key assessment criteria for assessing the built form responses are included in:

- Clause 15.01 Built Environment
- Clause 21.06 Built Environment and Heritage
- Clause 43.02 Design and Development Overlay (Schedule 7)

Consistent with these provisions, the proposal will:

- positively contribute to the future character of the neighbourhood as a contemporary addition which respects the immediately adjoining properties and will create visual interest along Barkly Street.
- capitalise on an under-utilised parcel of land within an existing urban area.
- respect the existing residential character to the east and south through the provision of a two-storey building form.
- contribute to the fine grain nature of the area through provision of vertical building elements at first floor.

- enhance the pedestrian experience along Barkly Street through the provision of active ground floor uses and a widened pedestrian footpath that includes outdoor seating and landscaping.
- provide safe and convenient access to and from the Site through clearly defined and wide entries.
- activate Barkly Street through the provision of multiple retail tenancies that will be heavily glazed.
- provide weather protection through provision of a canopy that extends to the front title boundary.
- will provide passive surveillance of the street at both ground and first floor through the provision of clear glazing.
- provide a landscaping approach that is consistent with the setting on the Site being within Barkly Village. It specifically includes greater treatment to the east and south given their residential nature.
- confine car parking and loading and unloading to within the Site and concealed from the street and neighbouring properties.
- be attractive from an urban design perspective through the provision of varying building materials and finishes, and the combination of both a horizontal and vertical treatment of the façade that adds interest to the building when viewed from the surrounds.

Having regard to the proposed DDO7 provisions (as per the independent panel's recommendation) pursuant to Planning Scheme Amendment C162, the proposal responds as follows:

Design or Built Form Element	Requirement	Response
Building Height	*Building height should not exceed 13.5 metres and four storeys, except for sites greater than 2000 square metres where building height should not exceed 16.5 metres (five storeys). This does not apply to a site greater than 4000 square metres in area.* *Height of a storey at the ground floor level of a new building must be at least 4 metres measured from finished floor level to the finished floor level.*	The proposal includes a maximum building height of 8.7 metres. The height of the ground floor varies between 3.6 metres and 4.5 metres to enable an adaptable floor plate.
Street Setback	*Walls of buildings should be set back from the front street:*	The proposal provides for a front setback of between zero and

	• *0 metres up to and including a height of 11.5 metres (three storeys) with a continuous street wall edge.* • *minimum 3 metres from the frontage above a height of 11.5 metres (three storeys).* *For a corner site, walls of buildings should have a 0-metre setback from the side street.*	three (3) metres. Whilst the proposed provisions for the Site refer to a zero setback, there is an opportunity to improve the pedestrian experience along Barkly Street and provide for an activated building frontage.
Side Setback	*Where a wall does not include a habitable room window or balcony, the wall should be set back 0 metres to a side boundary.* *Above ground floor level, where a wall includes a habitable room window or balcony, the wall should be set back 4.5 metres from the side boundary for a minimum length of 3 metres and be clear to the sky (except along the frontage)*	The proposal is not for residential uses so there are no habitable room windows or balconies. At ground floor level, the proposal is set back between 1.20 metres and 1.64 metres from the eastern boundary, and 1.21 metres from the western boundary. At first floor level, the proposal is set back 17.54 metres from the eastern boundary, except for a narrow stair well for fire egress that is located in the southeast corner and setback 1.2 metres from the eastern boundary. To the west, the proposal is setback 1.21 metres.
Rear Setback	*A rear setback of a building should be designed having regard to Standard B17 of Clause 55.04-14, Standard B19 of Clause 55.04-3, Standard B20 of Clause 55.04-4, Standard B21 of Clause 55.04-5, Standard D14 of Clause 58.04-1, and Standard D15 of Clause 58.04-2 of the Maribyrnong Planning Scheme*	The proposal is built to its southern for a length of approximately 60 metres similar to the existing conditions of the Site where the existing building also extends to approximately 60 metres along the southern boundary but includes a minor setback of between 160mm to 250mm. The plant room located at first floor is set back 12.36 metres, with the proposed building set back approximately 25 metres

		from the southern boundary.
Public Realm Interface	*Incorporate an active frontage response at all ground level interfaces.*	The proposal provides for a mix of active uses at the ground with large expanses of glazing and a building setback that in turn, increases the width of the pedestrian footpath.
	Maintain a fine grain street pattern of buildings with a 6-metre width at ground level and incorporate vertical articulation.	The proposal incorporates various retail tenancies at the ground floor that vary between 4 metres and 8 metres and proposes a contemporary reinterpretation of the industrial saw-tooth at first floor providing for a degree of articulation and depth.
	Ensure north-south pedestrian and cycling connections.	N/A
	Buildings on the north side of Barkly Street should be designed to ensure the footpath on the south side of the street receives full sunlight between 10am and 3pm on the 22 September.	N/A
	Where a laneway or secondary street exists, no vehicle access from the main street.	N/A
	Car parking area not visible from the street.	Car parking areas are confined to within the two basement levels and are therefore concealed from Barkly Street.
	Provide clearly visible and distinct entry points on the ground floor for residential uses on the upper levels (no alcoves or unsecured/setback entries).	Clear and distinct entrances are provided along Barkly Street through the provision of a ground floor building setback.
	Incorporate 65-80% glazing and transparency on the ground floor façade.	The ground floor employs expanses of glazing for each of the proposed tenancies.
	Incorporate windows on all levels of the building façade with direct access and outlook to the street frontage.	The proposal includes windows at both ground floor level and first floor level.
	Incorporate a canopy or awning over the footpath for the full width of the building frontage.	The proposal includes a canopy for the full width of its frontage for the purpose of weather

		protection.
	Minimise the visual impact of service cabinets on the façade.	Where possible, services are generally confined to within the two basement levels, and centrally at ground floor so that they are not readily visible from Barkly Street.
	Limit large signs.	The proposal does not seek approval for any signage.
	Plant and equipment (including air conditioning units and exhausts) should be integrated into the building design and appropriately screened.	Plant and equipment are confined to within the building or at rooftop level and concealed from the public domain.

6.4 Residential Amenity

The proposed development composition results in a considered design response which responds to the surrounding opportunities and constraints, including the Site's setting within the West Footscray Neighbourhood Activity Centre.

To that end, matters of visual bulk, noise and overshadowing are addressed below:

Shadow Implications:

The accompanying plans prepared by i2C Architects contain a shadow analysis comparing the proposed conditions against the existing conditions.

There are residential interfaces to the east and south. An assessment of these interfaces with respect to any potential shadow implications is provided below:

East:

- The proposed conditions (for dwellings at Nos 45-57 Hewitt Avenue) are not dissimilar to the existing conditions between 9am and 2pm. The primary area of secluded private open space for these dwellings is located at first floor which are not subject to any shadows (between 9am and 3pm) in addition to the existing shadows that affect these areas. These dwellings also include a secondary area of secluded private open space, which is accessible via the ground floor bedrooms. These spaces are subject to some additional shadows (in addition to the existing shadows that affect these areas) from 2pm however as noted above, these spaces are not the primary area of secluded private open space. It is noted that these dwellings are within the Mixed-Use Zone.

- No. 43 Hewitt Avenue is located within the General Residential Zone. On this basis, the proposed development must have regard to Clause 55.04-5 (Overshadowing open space objective). As depicted on Drawing No. DA46, the total area of secluded private open space (in accordance with Standard B21) is 90.5sqm. In order to meet Standard D21, the proposed development must not cast shadows for more than 75% of the area for a minimum of 5 hours between 9am and 3pm on 22 September 2022. As illustrated on Drawing No. DA45 and DA46, the proposed development does not add any additional shadows that would result in more than 75% of the area to be in shadow between 9am and 3pm on 22 September and therefore complies with Standard B21.

South:

- Other than at 9am, the proposed conditions are an improvement when compared to the existing conditions. The secluded private open space areas at first floor to the south are not impacted by the proposed development.

Visual Bulk:

The Site is affected by Schedule 7 to the DDO which presently encourages a two to three storey development that respects the existing residential character opposite the land, with a maximum preferred maximum building height of four storeys.

Council has proposed to amend Schedule 7 to the DDO through PS Amendment C162. It seeks to introduce a mandatory overall maximum building height of five storeys, a zero-side setback where there are no habitable room windows or balconies proposed.

The Panel, in its report dated 2 May 2022, amongst other things, recommends the removal of the mandatory overall maximum building height. Otherwise, the proposed built form provisions as stated above are expected to remain unchanged.

That being said, the Site is expected to accommodate a large development of around four to five storeys.

In response, the proposal:

- is limited to only two storeys and will provide an appropriate transition when compared to the adjoining residential properties along Barkly Street, Hewitt Avenue and McDougall Drive.

- represents a high-quality design response for the site. Its appearance is contemporary and provides visual interest along with opportunities for passive surveillance. The building is well-articulated, limited to two-storeys and characterised by upper-level setbacks to minimise the perception of visual bulk.

Schedule 7 (as proposed through Planning Scheme Amendment C162) encourages the built form to rear boundaries to have regard to Standard B17 of Clause 55.04-4, Standard B19 of Clause 55.04-3, Standard B20 of Clause 55.04-4, Standard B21 of Clause 55.04-5, Standard D14 of Clause 58.04-1, and Standard D15 of Clause 58.04-2 of the Maribyrnong Planning Scheme.

Having regard to the proposed amendment to Schedule 7 to the DDO, Clause 32.04-10 (Buildings on lots that abut another residential zone), and the general external amenity considerations, the proposed development:

- comprises a marginal encroachment to Standard B17 on the southern boundary where it abuts No. 43 Hewitt Avenue. This is illustrated on Drawing No. DA43. This level is appropriate given the strategic direction of the Site as it is located within a Neighbourhood Activity Centre. Furthermore, it is noted that the proposed development, as a whole, is two storeys in overall height. The Maribyrnong Planning Scheme envisages a building form much greater than two storeys, at between four and five storeys so whilst there is a marginal encroachment into Standard B17, the overall building is limited to two storeys.

- contains landscaping to soften the extent and height of wall between No. 45 and 57 Hewitt Avenue.

- contains a wall on the southern boundary that is lower in height when compared to the existing wall along that boundary. Separating the proposed development and the existing townhouses to the south, is an approximate 6.5 metre wide common driveway creating for a reasonable separation. The plant room at first floor of the proposed development is setback 12.35 metres and the building itself at first floor is setback 25.25 metres from the southern boundary, which are great setbacks that continue to permit outlook from the secluded private open space areas. As noted above, the proposed development is two storeys in overall height. The Maribyrnong Planning Scheme envisages a building form much greater than two storeys, at between four and five storeys.

Noise:

The application is accompanied by an Acoustic Assessment (the "Report") prepared by Acoustic Logic. The Report provides an assessment regarding the potential for detrimental noise emitted by vehicles (including loading vehicles) entering and existing the Site, the operation of the loading dock and equipment serving the proposal.

Having regard to 'Truck Movement and Loading Dock Activities', the following is noted:

- *A maximum of 1 large truck deliveries will occur in a half hour time period.*
- *Loading / unloading activities will only occur inside the loading dock.*
- *All deliveries shall occur between 7am and 10pm.*
- *Trucks are to have vacated the loading dock by 10pm.*

The Report provides the following recommendations to mitigate noise relating to the above as well with regard to general vehicle ingress and egress:

- *The loading dock shall be enclosed on the east, south, and west with a solid wall as well as a solid roof as indicated in Appendix 1 – Loading Dock Treatment*
- *If the loading dock is required to be mechanically ventilated, the fan shall be acoustically treated with internally lined ductwork or attenuators to ensure compliance with EPA Publication 1826.4 is achieved.*

The underside of the roof within the loading dock area shall be lined with absorptive material such as 40mm Envirospray or approved equivalent by a suitable qualified acoustic consultant.

6.5 Traffic & Transport Considerations

This application is accompanied by a Transport Impact Assessment prepared by Ratio and concludes the following:

- *The proposed development generates a statutory requirement to provide 255 car parking spaces on-site, for those uses where a parking rate is nominated in the Planning Scheme.*
- *Based on an empirical assessment, the gymnasium (which doesn't generate a statutory car parking requirement) is expected to generate a peak car parking demand of 11 spaces.*
- *The proposed provision of 278 on-site car parking spaces is either in accordance with or exceeds the parking requirement for each of the proposed uses and is therefore considered acceptable.*
- *The development generates a statutory requirement to provide a total of 21 bicycle parking spaces, including 9 spaces for employees and 12 spaces for visitors. The development also generates a requirement to provide 2 showers / change rooms for employees.*
- *The proposed provision of 23 bicycle parking spaces, including 9 bicycle parking spaces, 18 lockers and 2 showers / change rooms for employees within a dedicated EOT facility on basement 01 and*

14 spaces for visitors on ground level. This provision exceeds the minimum statutory requirements of the site and is considered acceptable.

- *The proposed bicycle parking layout has been designed in accordance with the requirements of the Australian Standard AS2890.3:2015.*
- *Access to/from the site is proposed via a new southern leg to the Barkly Street / Summerhill Road intersection. A concept layout plan (CLP) has been prepared which provides details of the proposed intersection layout.*
- *The proposed car parking layout has been designed in accordance with Design Standard 1, 2 and 3 of Clause 52.06 of the Maribyrnong Planning Scheme and/or the relevant sections of the Australian Standards.*
- *Based on a swept path assessment, it is concluded that a 12.5 metre long HRV is able to access the site via the proposed Barkly Street / Summerhill Road intersection layout, access the loading dock via the turntable and then depart the site in a forward direction.*
- *The proposal is expected to generate approximately 362 vehicle movements during the PM peak hour and 322 vehicle movements during the Saturday peak hour, which will access the site via the upgraded Barkly Street / Summerhill Road intersection.*
- *On the basis of the SIDRA analysis within this report, it is considered that the surrounding road network has the ability to accommodate the increase in traffic generated by the proposed development in a safe and satisfactory manner without creating detrimental traffic safety or operational impacts.*
- *Overall, based on the assessment undertaken, the proposed mixed-use development is considered to be acceptable from a transport engineering perspective and is not expected to create adverse traffic or parking impacts in the area.*

6.6 Other Considerations

Environmentally Sustainable Design (ESD):

This application is accompanied by a Sustainable Management Plan prepared by IGS and contains the ESD initiatives for the proposed development. Overall, the proposed development will be designed to achieve a 4-Star Green Star equivalent design under the current Green Star Buildings rating tool Version 1.

Landscaping:

This application is also accompanied by a Landscape Plan prepared by Urbis and contains the landscaping treatment for the proposed development. In summary, the Landscape Plan illustrates:

- A row of planters containing ground covers, shrubs, and trees within the front setback to soften the hard landscaping.
- A row of climbers on the wall along the eastern for softening purposes.
- A 50sqm rainwater garden on the roof towards the eastern boundary.

Waste:

This application is also accompanied by a Waste Management Plan prepared by Ratio that assesses the waste management implications of the proposed development.

7 Conclusion

The proposal represents an appropriate planning outcome for the subject land for the following reasons:

- The proposal will result in a significant positive net community benefit.
- The proposal provides for a mix of uses that are encouraged through the Mixed-Use zoning of the land but most importantly, there is an undersupply of supermarket floor space within the inner western suburbs of Melbourne.
- The Site is located within the Barkly Village being an area poised for redevelopment.
- The proposed uses on the land are consistent with the Mixed-Use zoning of the Site.
- The proposal results in the redevelopment of an under-utilised parcel of land.
- The proposal significantly improves the public realm and pedestrian experience through the provision of active ground floor uses and a building setback that in turn widens the pedestrian footpath.
- The proposal provides for adequate car parking to ensure the immediate and surrounding neighbourhood is not negatively impacted.
- The proposal will provide for a greater proportion of employment close to where people live.
- The proposal will become a place where people can gather, socialise, shop, work and make use of community and leisure services.

7

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Fabcot Pty Ltd

Date
19 October 2022

West Footscray Village – Mixed Use Development

495-507 Barkly Street, Footscray

ratio:

Planning
Transport
Urban Design Waste Management ratio.com.au

Project
495-507 Barkly Street, Footscray

Prepared for
Fabcot Pty Ltd

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Version	Date	Issue	Prepared by	Checked by	Approved by
F01	19/10/2022	Final	S. Lewis	J. Hamill-Beach	C. Greenland

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1. Introduction

1.1. Introduction

Ratio Consultants was commissioned by Fabcot Pty Ltd (the permit applicant) to assess the traffic and parking implications of the proposed mixed-use development 495-507 Barkly Street in Footscray.

The proposal includes a mixture of retail (supermarket, speciality retail and bottle shop) uses across much of the ground floor level, and a restricted recreation facility (gymnasium), childcare centre, medical centre and office space on the levels above.

It is proposed to provide a total of 278 on-site car parking spaces across two basement levels.

Vehicle access to the development will be via a proposed modification to an existing vehicle crossover in the northeast corner of the site on Barkly Street, providing access to the basement car park levels and loading area on ground level. To facilitate vehicle movement to/from this primary vehicle access on Barkly Street, it is proposed to upgrade the intersection of Barkly Street / Summerhill Road to provide four-leg traffic signal control. All remaining existing crossovers to the site will be re-instated with kerb and channel.

Pedestrian access to the subject site will be provided directly from Barkly Street, with lifts/travelators providing vertical transport to the car parking levels. Furthermore, portions of the site will be set back from the road frontage in order to provide additional pedestrianised area for walk up foot traffic to the site from nearby areas.

The proposed development will also include a total of 23 on-site bicycle parking spaces located in various areas around the site. This includes a mix of bicycle parking for employees and visitors to all land uses, which will be outlined later in this report.

This report has been prepared to undertake a transport impact assessment of the proposed development.

1.2. Purpose & Structure of this Report

This report sets out an assessment of the anticipated parking, traffic and transport implications of the proposed development, including consideration of the:

1. Existing traffic conditions surrounding the site
2. Parking demand likely to be generated by the proposed development
3. Suitability of the proposed parking in terms of supply and layout
4. Traffic generation characteristics of the proposed development
5. Proposed access arrangements for the site
6. Transport impact of the development proposal on the surrounding road network.

1.3. References

In preparing this report, reference has been made to the following:

— Plans for the proposed development prepared by i2C Architects.

— Maribyrnong Planning Scheme.

— Australian/New Zealand Standard, Parking Facilities Part 1: Off-Street Car Parking (AS2890.1:2004).

— Australian Standard, Parking Facilities Part 3: Bicycle Parking (AS2890.3:2015).

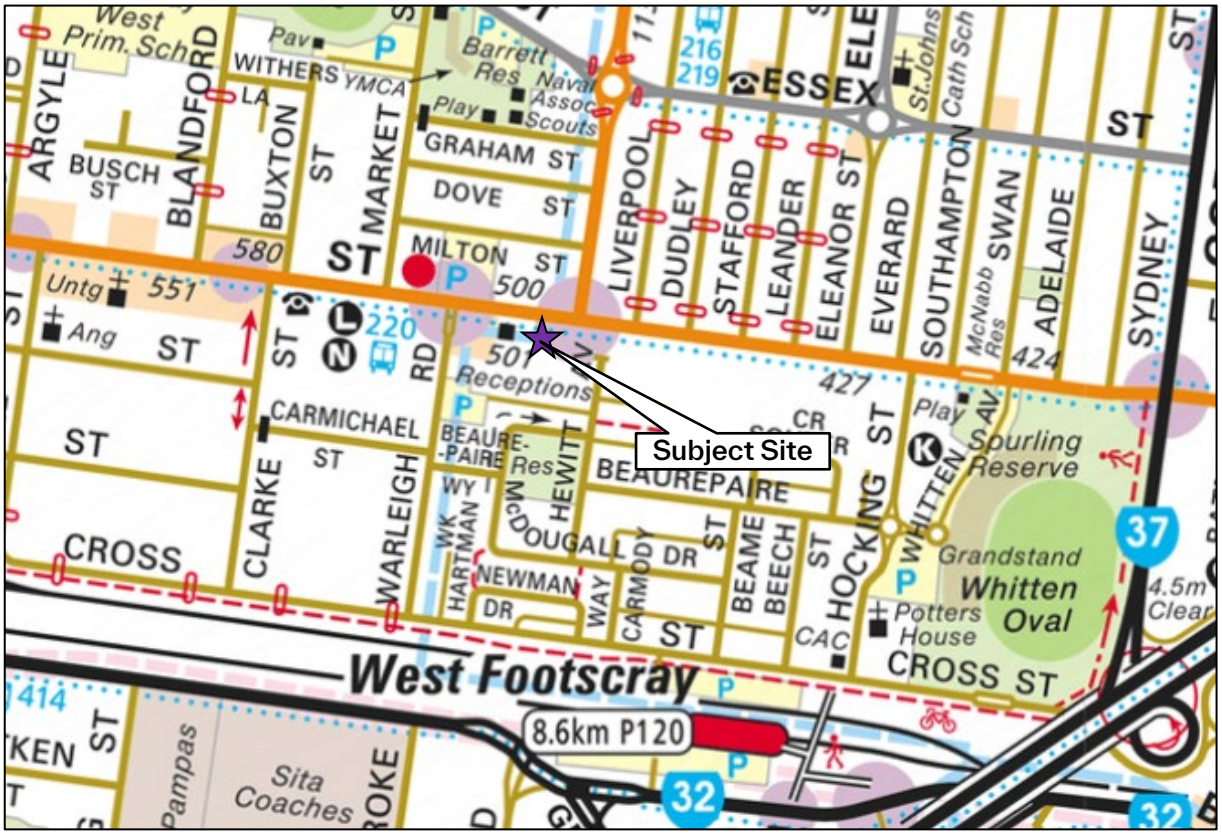
- Australian Standard, Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities (AS2890.2:2002).
- Australian/New Zealand Standard, Parking Facilities Part 6: Off-Street Parking for People with Disabilities (AS/NZS 2890.6:2009).
- An inspection of the subject site and its surrounds.
- Traffic surveys as referenced in this report.
- Other documents as nominated.

2. Existing Conditions

2.1. Location and Environment

The subject site is located on the southern side of Barkly Street in Footscray. The site's location relative to the surrounding road network is shown in Figure 2.1.

Figure 2.1: Site Location



(Source: Melway)

The subject site is broadly rectangular in shape with a frontage to Barkly Street of approximately 84 metres, a depth of 76 metres, for an approximate overall site area of 6,290 square metres.

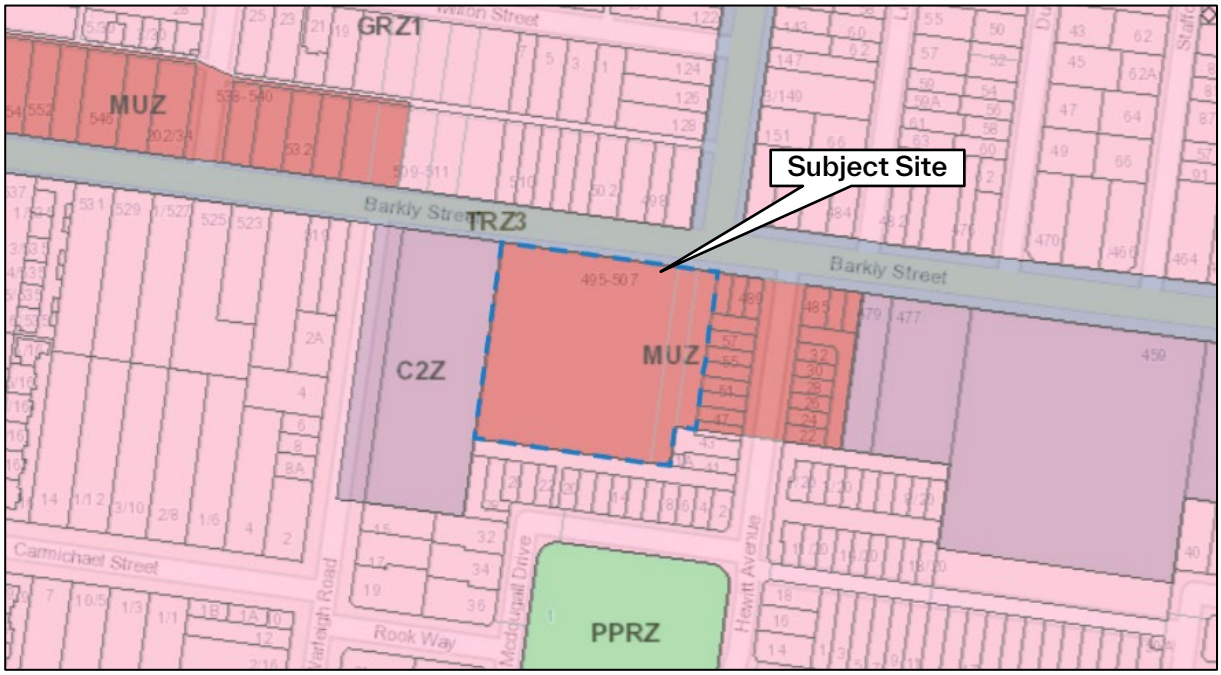
The subject site consists of a single land parcel and is currently occupied by a vacant single storey place of assembly building with vehicular access to the site provided via a four single width vehicle crossovers to/from Barkly Street. There is also a bus stop provided on the southern side of Barkly Street, to the west of the subject site.

The site is located in a Mixed-Use Zone (MUZ) and subject to a Design and Development Overlay – Schedule 7 (DDO7) and Environmental Audit Overlay. It is further noted that the site is situated within the West Footscray Neighbourhood Activity Centre.

Land use in the immediate vicinity of the subject site is primarily residential with commercial/retail land uses located to the east of the subject site along the southern side of Barkly Street. Other non-residential land uses of note in the area include West Footscray Railway Station located approximately 700 metres south-west of the subject site.

Figure 2.2 shows the location of the site and the Bayside Planning Scheme Zones.

Figure 2.2: Planning Scheme Zones



(Source: Vicplan)

In addition, Figure 2.3 shows an aerial view of the site and its immediate surrounds.

Figure 2.3: Aerial View of the Site and the Surrounds

(Source: Nearmap)

2.2. Road Network

Barkly Street is a Transport Road Zone 3 under the control of Council that runs in an east-west alignment between Nicholson Street in the east and Ashley Street in the west.

Barkly Street has an approximate carriageway width of 11.0 metres, catering for one traffic lane and one bicycle lane in each direction. **Barkly Street** has a posted speed limit of 50 km/hr, whilst constructed footpaths have been provided on both sides of the road.

A typical view of **Barkly Street** in the vicinity of the site is shown in Figure 2.4 and Figure 2.5.

Figure 2.4: Barkly Street Looking East

Figure 2.5: Barkly Street Looking West

Summerhill Road is a Transport Road Zone 3 under the control of Council that runs in a north-south alignment between Barkley Street in the south and Ballarat Road in the north.

Summerhill Road has an approximate carriageway width of 11.5 metres, catering for one traffic lane and one bicycle lane in each direction and parallel car parking spaces on both sides of the carriageway. **Summerhill Road** has a posted speed limit of 50 km/hr, whilst constructed footpaths have been provided on both sides of the road.

A typical view of **Summerhill Road** in the vicinity of the site is shown in Figure 2.6 and Figure 2.7.

Figure 2.6: Summerhill Road Looking North

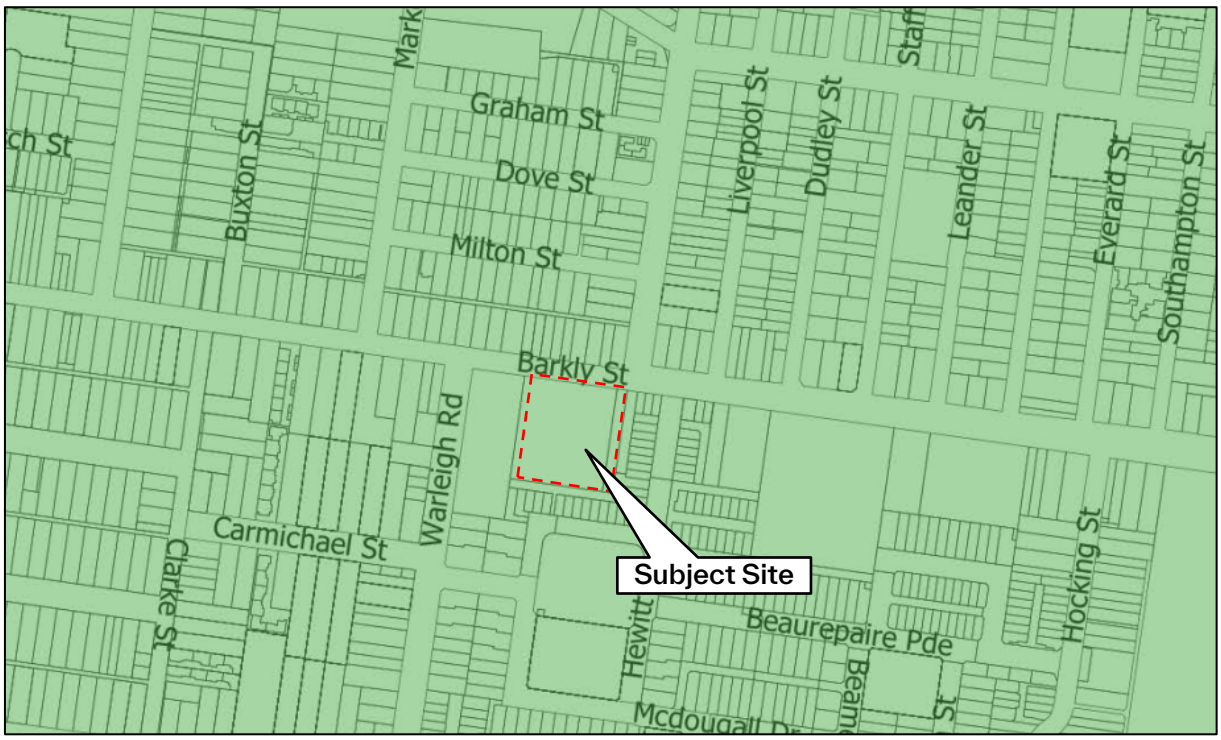
Figure 2.7: Summerhill Road Looking South

2.3. Sustainable Transport

Public Transport

The subject site is located within the Principal Public Transport Network (PPTN), as shown in Figure 2.8.

Figure 2.8: City of Maribyrnong Principal Public Transport Network Area



(Source: Department of Environment, Land, Water and Planning)

The site has access to high quality public transport services, as described in Table 2.1 and Table 2.2. The transport services are shown in Figure 2.9.

Based on the available public transport services, Figure 2.10 presents an isochrone drawing of the area accessible from the subject site's location in a 30-minute public transport journey.

The isochrone drawing indicates that all adjoining suburbs can be accessed in a 30-minute public transport journey, including the Melbourne CBD.

Table 2.1: Public Transport Services - Train

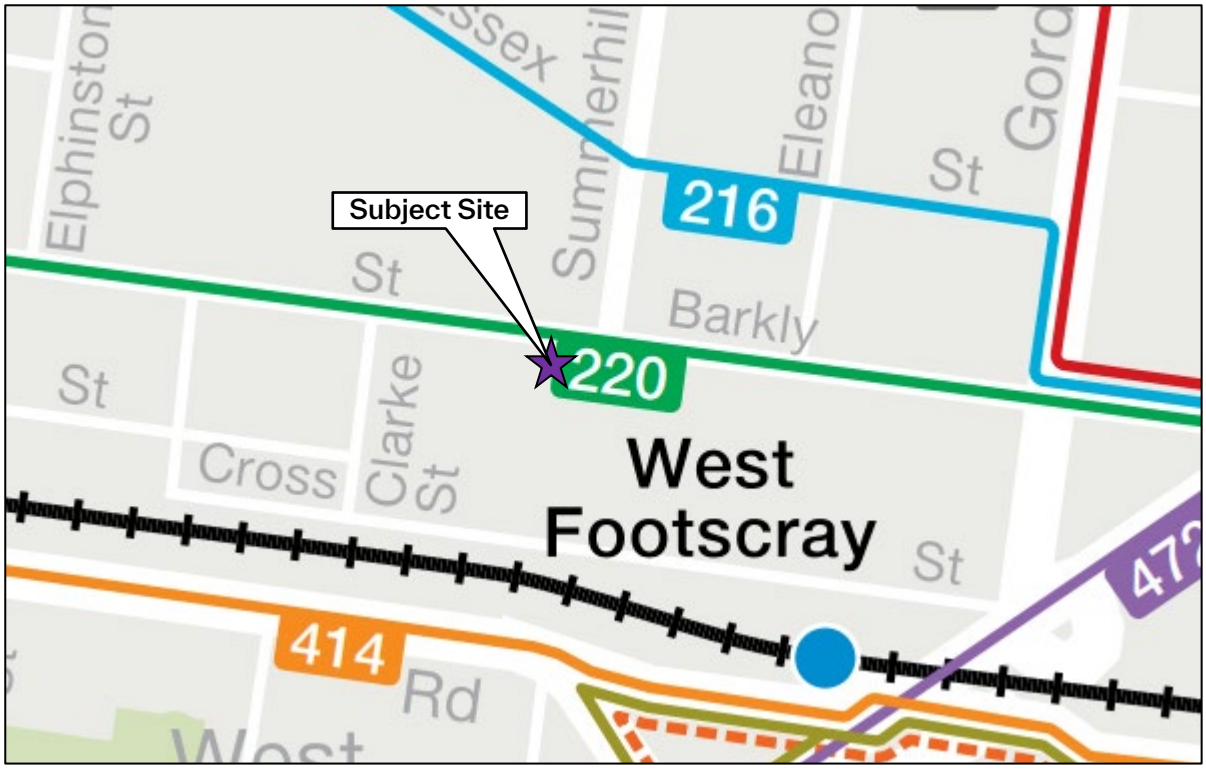
Route No.	Route Description	Nearest Stop	Walking Distance
West Footscray Station	Sunbury Line		700 metres

Table 2.2: Public Transport Services - Bus

Route	Route Description	Nearest Stop	Walking Distance
220	Sunshine Station – City via Footscray	Barkly Street	Site Boundary
216	Sunshine Station – City via Dynon Road	Essex Street	300m

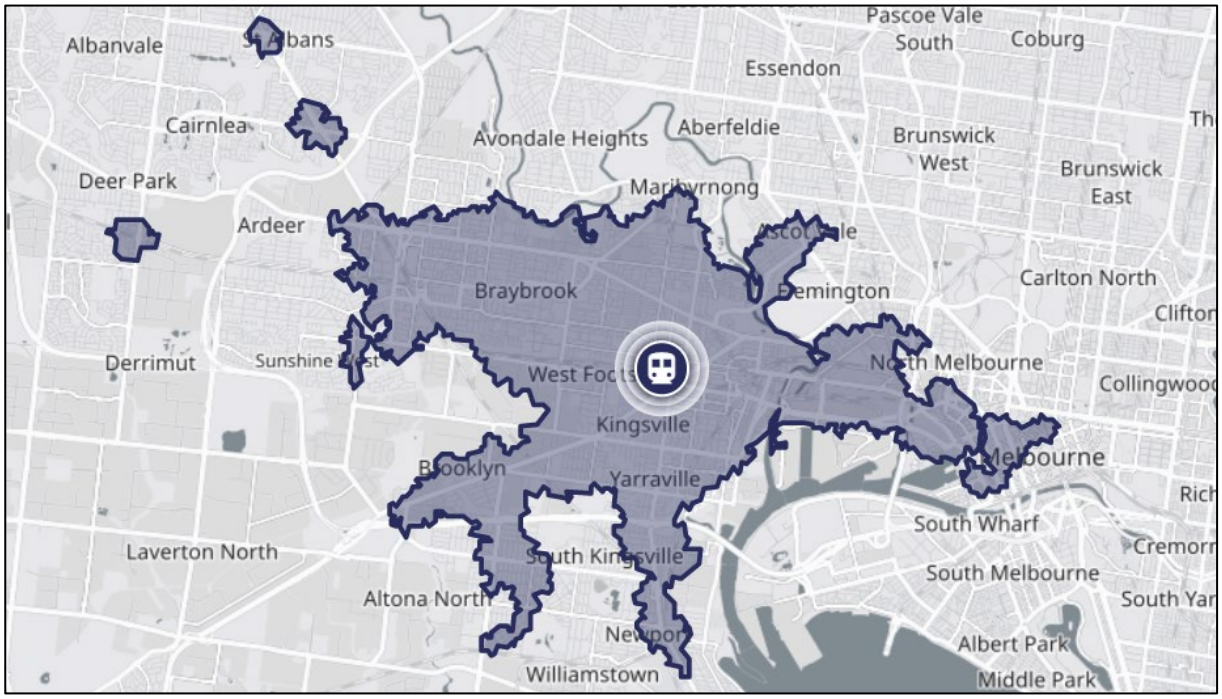
Figure 2.9 shows the public transport services that operate within convenient proximity of the site.

Figure 2.9: Maribyrnong Council Public Transport Map



(Source: Public Transport Victoria)

Figure 2.10: Public Transport Catchment Area from Subject Site



Pedestrian Network

West Footscray enjoys a connected pedestrian network, with all streets in the surrounding area having constructed footpaths and street lighting.

The subject site has a Walk Score of 82 out of 100 (on walkscore.com), indicating that the surrounding area is *'very walkable'* and that *'most errands can be accomplished on foot'*.

The Walk Score of an area is calculated by determining the distance required to walk from an origin to nearby amenities. It also assesses block sizes and intersection density to determine the permeability of an area.

The 30-minute walking catchment area from the subject site is shown in the isochrone map presented in Figure 2.11.

The isochrone map indicates a walking catchment of approximately 1.5-2.0km in all compass directions.

Figure 2.11: Walking Catchment Area from Subject Site

Bicycle Network

The Principal Bicycle Network (PBN) is a network of an and off-road cycling corridors that have been identified to support cycling for transport and accessing major destinations in metropolitan Melbourne. The PBN was reviewed and updated in 2012 by VicRoads and all local Councils.

The PBN is also a 'bicycle infrastructure planning tool' to guide State investment in the planning and development of the future metropolitan Melbourne bicycle network.

In this regard, a subset of the PBN has been identified and elevated to a higher level of priority, mainly on the basis of potential for separation from motorised traffic, making these routes more attractive to less experienced bike riders.

These cycling corridors are referred to as Bicycle Priority Routes (BPR's) and form part of the modal priorities for the road network set out in the VicRoads SmartRoads framework.

Strategic Cycle Corridors (SCC) form another subset of the PBN, and represent an initiative outlined in Plan Melbourne to support walking and cycling in Central Melbourne.

SCC's are intended to be corridors designed to provide high-quality bicycle infrastructure to, and around, major activity areas in metropolitan Melbourne.

In this regard, roads and shared paths identified within the PBN in the vicinity of the subject site are shown below in Figure 2.12, bicycle infrastructure in Figure 2.13 and the 30-minute cycling catchment area from the subject site is shown in Figure 2.14.

Figure 2.12: Principal Bicycle Network

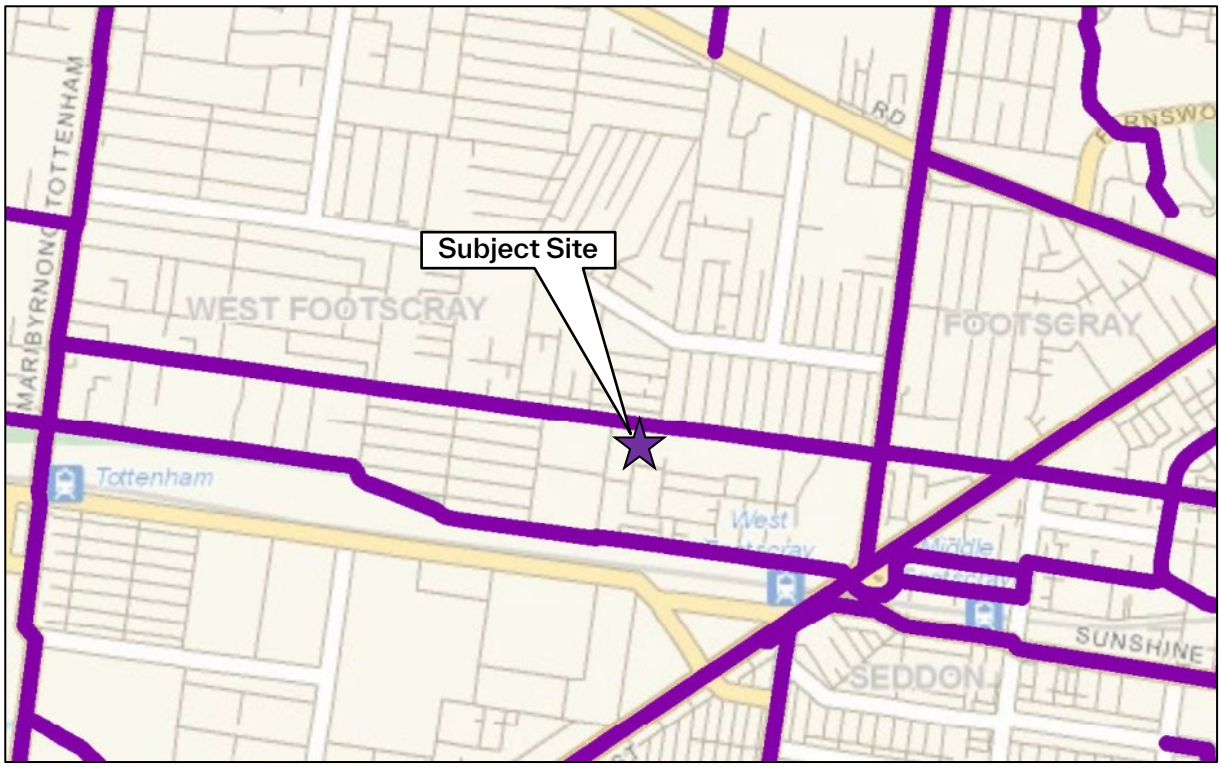


Figure 2.13: Bicycle Infrastructure in the Vicinity of the Site

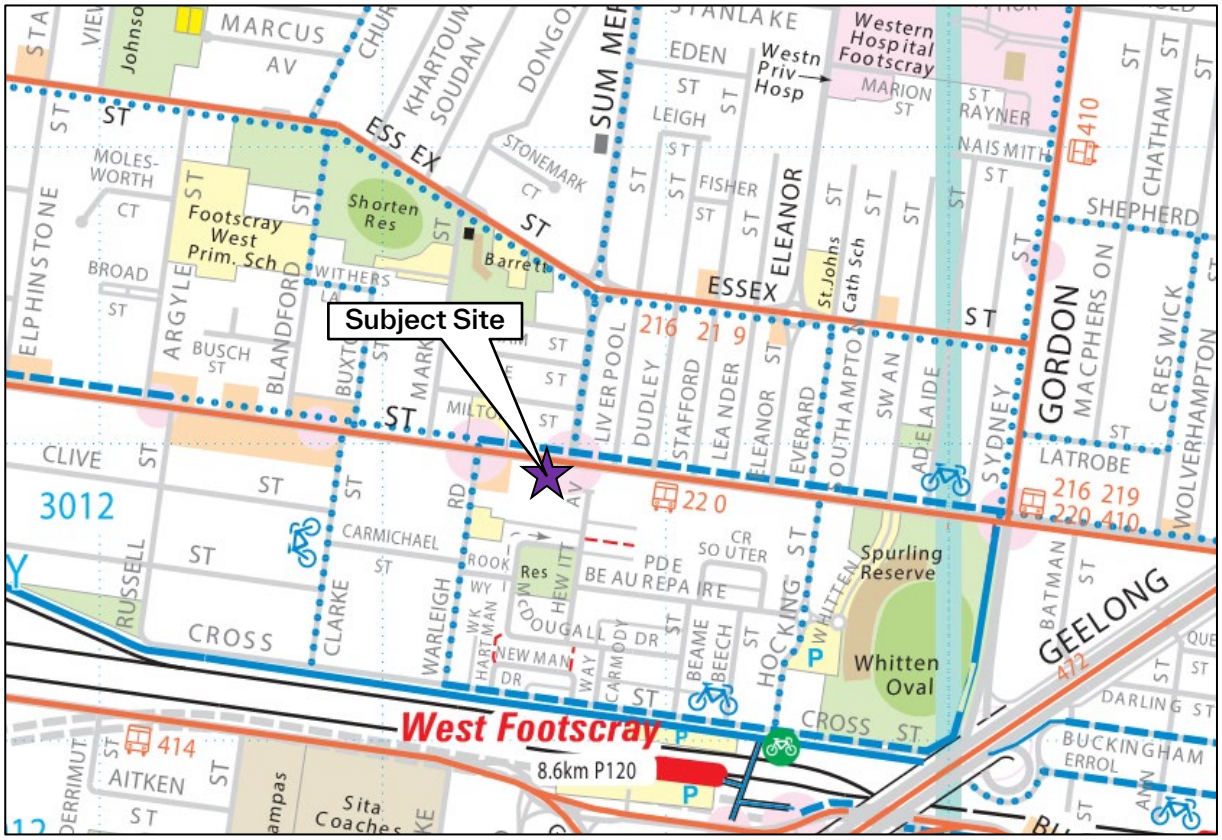
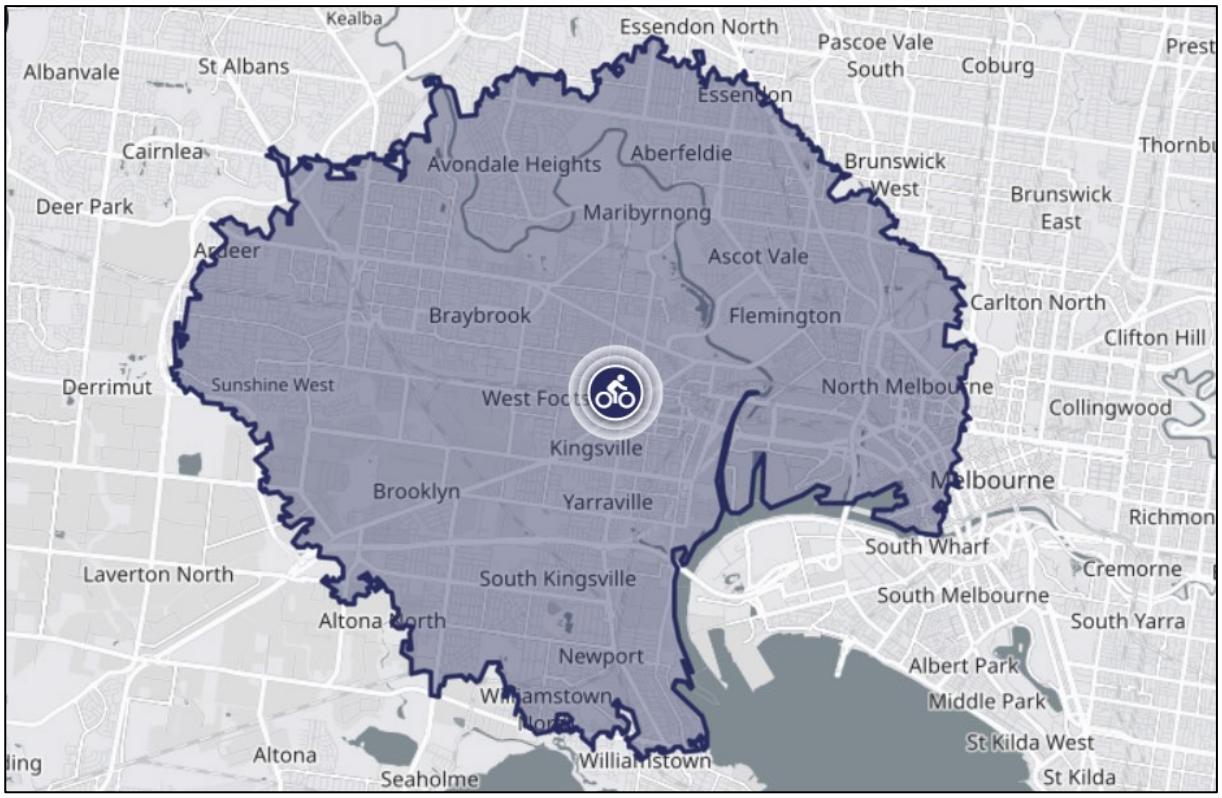


Figure 2.14: Cycling Catchment Area (from Subject Site)



The previous figures indicate that the subject site is accessible via bicycle, with nearby bicycle infrastructure allowing convenient access.

2.4. Crash Analysis

A review has been conducted of VicRoads 'CrashStats' database for the five-year period of available data for any reported casualty crashes.

This database records all accidents causing injury that have occurred in Victoria since 1987 (as recorded by Victorian Police) and categorises these accidents as follows:

- *Fatal injury: at least one person was killed in the accident or died within 30 days as a result of the accident.*
- *Serious injury: at least one person as sent to Hospital as a result of the accident.*
- *Other injury: at least one person required medical treatment as a result of the accident.*

A summary of the accidents in the vicinity of the subject site for the last five-year period is presented in the below table.

Table 2.3: Summary of Crashes in the Vicinity of the Subject Site

Location	Accident No.		
	Fatality	Serious Injury	Other Injury
Site Frontage			
Barkly Street	0	0	0
Nearby Intersections			

Barkly Street / Summerhill Rd	0	2	0
Total	**0**	**2**	**0**

Table 2.3 indicates that over the last available five-year period, two crashes were recorded in the immediate vicinity of the subject site. Critically, only no crashes were reported along the site frontage. Given the road classifications and associated traffic volumes, it is considered that the road network is operating in a relatively safe manner.

2.5. Existing Traffic Volumes

To understand existing traffic volumes in the vicinity of the subject site, Ratio Consultants sourced SCATS data to determine the turning movements at the Barkly Street / Summerhill Road intersection for the following time periods:

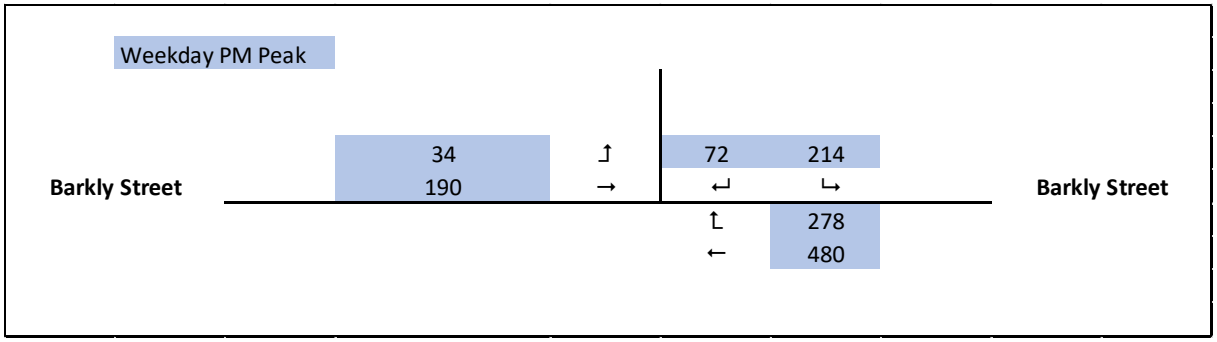
— Thursday 25 February 2022 between 5:00pm-6:00pm

— Saturday 27 February 2022 between 12:30pm-1:30pm.

Given that the above dates are outside school holiday and public holiday weekend periods, the data is considered to best represent typical road network operating conditions.

The PM and Saturday peak hour volumes recorded through the intersection are presented below in Figure 2.15.

Figure 2.15: Barkly Street / Summerhill Road Intersection – Existing Traffic Volumes



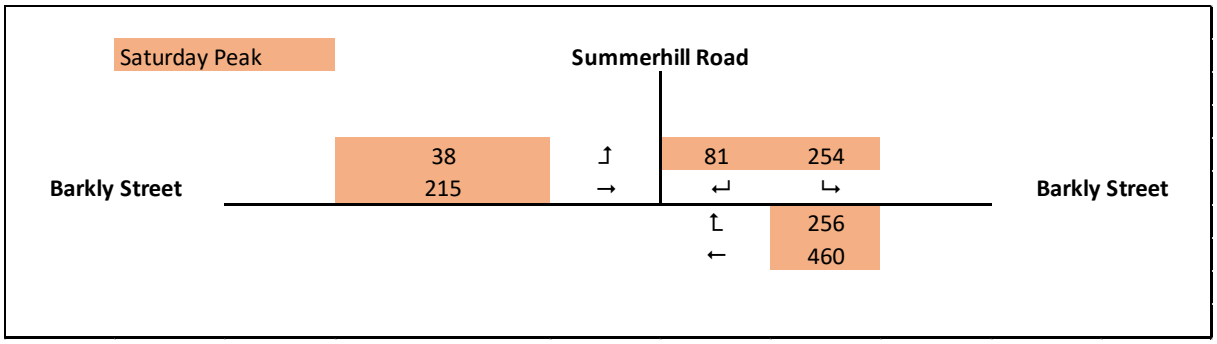


Figure 2.15 indicates that traffic volumes on Barkly Street and Summerhill Road carry traffic volumes expected for the role and function of these streets.

2.6. Existing Intersection Operation

General

An existing conditions peak hour intersection analysis has been undertaken of the Barkly Street / Summerhill Road intersection, using the analysis program SIDRA Intersection.

SIDRA Parameters

The key parameters used to determine the operational capacity of an intersection are queue length, average delay and degree of saturation (or volume to capacity ratio).

Degree of Saturation (DOS) is a ratio of arrival (or demand) flow to capacity. DOS above 1.0 represent oversaturated conditions and a DOS below 1.0 represent undersaturated conditions.

The operational rating associated with the DOS is summarised in Table 2.4.

Table 2.4: Ratings of Degree of Saturation

Degree of Saturation (DOS)	Rating
Up to 0.6	Excellent
0.61 – 0.70	Very Good
0.71 – 0.80	Good
0.81 – 0.90	Fair
0.91 – 1.00	Poor
Greater than 1.00	Very Poor

Although operating conditions with a degree of saturation around 1.00 are undesirable, it is acknowledged that this level of congestion is typical of many metropolitan intersections during the AM and PM peak hours.

The **95th percentile queue** length is the value below which 95 percent of all observed cycle queue lengths fall, or 5 percent of all observed queue lengths exceed.

Average Delay is the average time, in seconds, that all vehicles making a particular movement can expect to wait at an intersection.

Barkly Street / Summerhill Road

A SIDRA analysis was conducted to determine the existing operation of the intersection. The results are summarised below in Table 2.5, with a full set of results presented in Appendix A of this report.

Table 2.5: Existing Intersection Operating Conditions

Approach	PM Peak Hour			Saturday Peak Hour		
	D.O.S.	95%ile Queue (m)	Average Delay (s)	D.O.S.	95%ile Queue (m)	Average Delay (s)
Barkly Street (East)	0.045	65.4	12.3	0.408	62.7	12.8
Summerhill Road (North)	0.367	33.7	23.7	0.413	44.4	25.0
Barkly Street (West)	0.406	58.2	28.2	0.413	63.6	26.0

In summary, the SIDRA results of the existing operation of the intersection indicate the following:

- Each approach of the Barkly Street / Summerhill Road intersection is currently operating under the 'excellent' category during the weekday PM peak hour and Saturday midday peak hour.
- There are moderate queues in both directions along Barkly Street, which is a reflection of the volume of through traffic that currently uses this road during the road network peak hours.

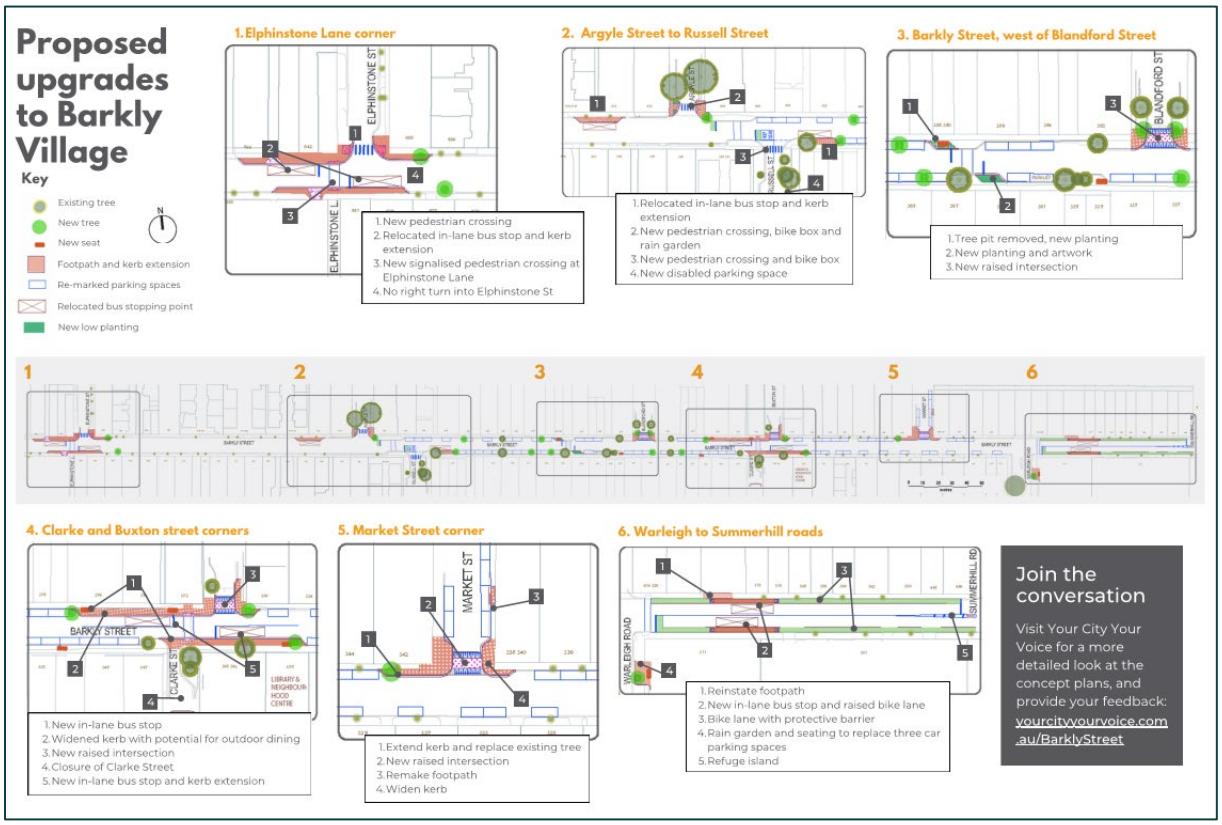
— However, delays both approaches on Barkly Street are experiencing delays of less than 30 seconds during both peak hour periods. This indicates that all vehicles queued along Barkly Street are able to clear the intersection within one cycle.

2.7. Planning Policy - Barkly Streetscape

Council is seeking to improve the streetscape and amenity along Barkly Street and Barkly Village as identified as a key action in the West Footscray Neighbourhood Plan (2018).

The above is in an early stage of planning, with a number of high-level conceptual plans that have been prepared in order for the local community to understand the potential upgrades possible. These are shown in Figure 2.16.

Figure 2.16: Proposed Schematic of Potential Upgrades to Barkly Village



Of particular note is item 6 within Figure 2.16 that identifies the section of road between Warleigh Road and Summerhill Road which has an eastern area frontage to the subject site.

Any proposed mitigation works as part of the proposed development should seek to continue to allow the upgrade works associated with the potential Barkly Village Streetscape project.

3. The Proposal

3.1. General

It is proposed to redevelop the land at 495-507 Barkly Street in Footscray for the purpose of a mixed-use development, including a supermarket with associated basement car parking area to cater for car, bicycle parking and waste facilities.

More specifically, the development will incorporate the following land use yield and associate transport infrastructure, as summarised in Table 3.1.

Table 3.1: Development Summary

Land Use		
Land Use Clarification	**Description**	**Size / Number**
Supermarket	Supermarket	3,686 sqm
Retail Premises	Speciality Retail	577 sqm
	Bottle Shop	138.5 sqm
Gymnasium	Restricted Recreation Facility	384 sqm
Commercial	Office	368 sqm
Medical Centre		425 sqm 4 practitioners [1]
Childcare Centre	Childcare Centre	1,485 sqm 110 children
Transport Infrastructure		
Type	**Description**	**Size / Number**
Pedestrian Access	Along northern boundary	-
Vehicle Access	Barkly Street	Fully Directional
Parking	Car Spaces	278 spaces [2]
	Motorcycle Spaces	10 spaces
	Direct to Boot Spaces	5 spaces
	Bicycle Spaces	23 spaces [3]
Loading	Loading and Waste	Trucks up to 12.5m long (HRV)

[1] A total of 4 medical practitioners has been assumed for the purpose of this assessment.
[2] Including 268 standard spaces, 4 parents/pram spaces and 6 spaces for people with disabilities.
[3] Including 9 vertical bicycle racks, 18 lockers and 2 showers / change rooms within the EOT facility on basement 01 and 7 double sided bicycle hoops (14 spaces) along the site frontage to Barkly Street.

A summary of the key transport components of the proposal include:

— It is proposed to provide a total of 278 car parking spaces across the site, including 268 standard car parking spaces for customers, 4 spaces dedicated to families and 6 parking spaces for people with disabilities.

— The 5 'Direct to Boot' car parking spaces on the southern side of Basement Level 1 has not been included in the total on-site parking supply for the site. However, the use of online services provides an alternative to traditional means of on-site car parking usage.

Further discussion regarding car parking provision is provided in Section 4 of this report.

— It is proposed to provide a total of 23 on-site bicycle spaces, including 9 vertical bicycle racks, 18 lockers and 2 showers / change rooms within the EOT facility on basement 01 and 7 double sided bicycle hoops (14 spaces) along the site frontage to Barkly Street.

Further discussion regarding bicycle parking provision and design is provided in Section 6 of this report.

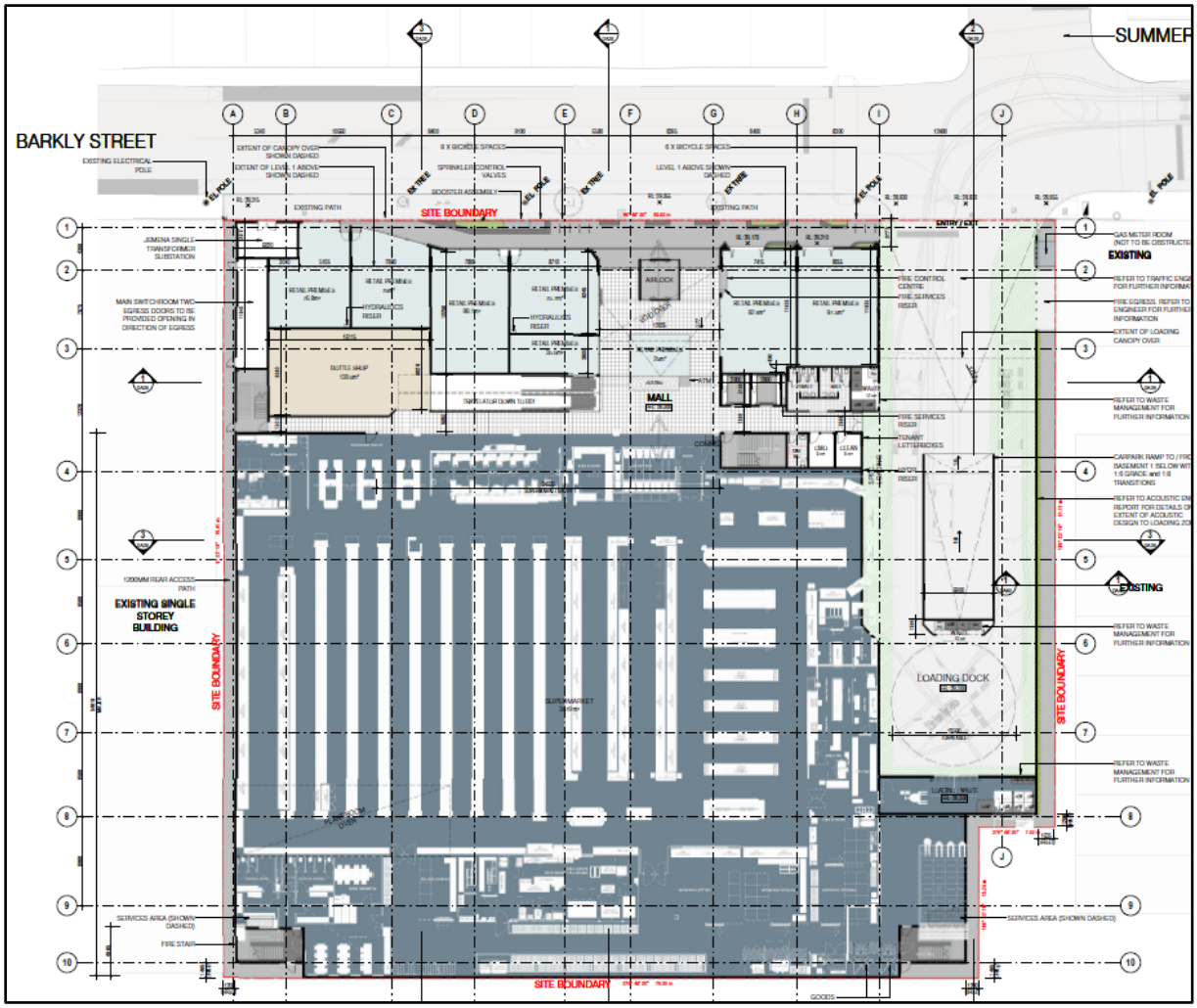
— The design includes a north-south pedestrian connection through both basement levels of the car park, with the primary central pathway to provide raised pedestrian priority crossings within the site.

— There will be a dedicated on-site loading dock on the southern side of the ground floor to basement ramp, capable of catering for a 12.5m heavy rigid vehicle (HRV).

Further discussion regarding the loading and waste arrangements is provided in Section 7 of this report.

The proposed site layout is shown in Figure 3.1 and is attached in full as Appendix B.

Figure 3.1: Proposed Site Layout (Ground Floor)



(Source: i2c Architects – Proposed Ground Floor Plan)

4. Car Parking Assessment

4.1. Clause 52.06 Assessment

Parking requirements for a range of uses are set out under Clause 52.06 of the Maribyrnong Planning Scheme. The purpose of Clause 52.06 is defined in the Scheme as follows:

- *To ensure that car parking is provided in accordance with the Municipal Planning Strategy and the Planning Policy Framework.*
- *To ensure the provision of an appropriate number of car parking spaces have regard to the demand likely to be generated, the activities of the land and the nature of the locality.*
- *To support sustainable transport alternatives to the motor car.*
- *To promote the efficient use of car parking spaces through the consolidation of car parking facilities.*
- *To ensure that car parking does not adversely affect the amenity of the locality.*
- *To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.*

Table 1 of Clause 52.06 sets out the car parking requirement that applies to a use listed in the Table. Of relevance, Clause 52.06-5 states that:

A car parking requirement in Table 1 is calculated by multiplying the figure in Column A or Column B (which ever applies) by the measure in Column C.

Column A applies unless Column B applies.

Column B applies if:

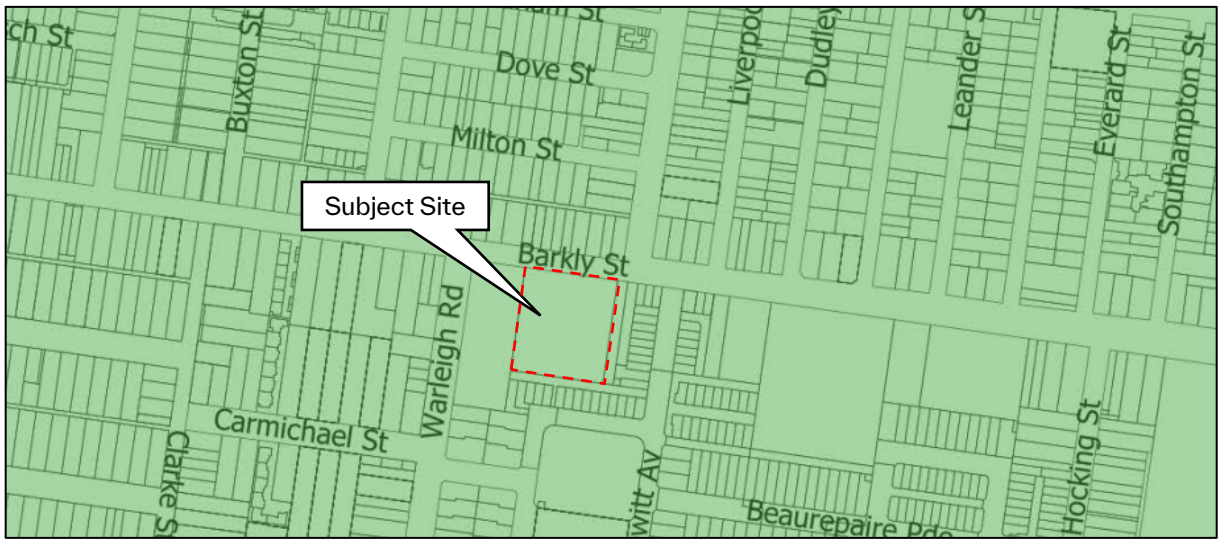
- *Any part of the land is identified as being within the Principal Public Transport Network Area as shown on the Principal Public Transport Network Area Maps (State Government of Victoria, 2018); or*
- *A schedule to the Parking Overlay or another provision of the Planning Scheme specifies that Column B applies.*

Additionally, the car parking requirement specified for a use listed in Table 1 does not apply if:

- *A car parking requirement for the use is specified under another provision of the Planning Scheme: or*
- *A schedule to the Parking Overlay specifies the number of car parking spaces required for the use.*

The subject site is located within the PPTN area as illustrated within Figure 4.1 and is not subject to a Car Parking Overlay. In this regard, the Column B rates outlined in Table 1 of Clause 52.06-5 applies.

Figure 4.1: Maribyrnong Principal Public Network Area (Highlighted in Green)



(Source: Department of Environment, Land, Water and Planning)

Accordingly, the statutory car parking requirements for the proposed development have been assessed against these rates, as summarised in Table 4.1.

Table 4.1: Clause 52.06 Planning Scheme Requirement

Use	Number / Size	Statutory Parking Rate	Statutory Requirement
Supermarket	3,686 sqm	5.0 spaces per 100sqm of floor area	184 spaces
Shop [1]	715.5 sqm	3.5 spaces per 100sqm of floor area	25 spaces
Restricted Recreation Facility	384 sqm	Not Listed	-
Office	368 sqm	3.0 spaces per 100sqm of floor area	11 spaces
Medical Centre	425 sqm	3.5 spaces per 100sqm of floor area	14 spaces
Childcare Centre	110 children	0.22 spaces per child	24 spaces
Total			**258 spaces**

[1] Includes the bottle shop and specialty retail tenancies

Accordingly, the proposed development has a statutory requirement to provide a minimum of 258 on-site car parking spaces, for those uses where a parking rate is nominated in the Planning Scheme.

4.2. Empirical Assessment – Restricted Recreation Facility (Gymnasium)

The Planning Scheme does not specify a parking rate for a 'restricted recreation facility' land use. In such circumstances, the Planning Scheme notes the following in Clause 52.06-6:

"Where a land use is not specified in Table 1 or where a parking requirement is not specified for the use in another provision of the Planning Scheme or in a schedule or the Parking Overlay, before a new use commences or the floor area of an existing use is increased, car parking must be provided to the satisfaction of the Responsible Authority".

Clause 73.03 of the Maribyrnong Planning Scheme defines a restricted recreation facility as *'land used by members of a club or group for leisure, recreation, or sport, such as a bowling or tennis club, gymnasium and/or fitness centre. It may include food and drink consumption on the premises, and gaming. It may also include use by members' guests, or by the public on payment of a fee.'*

Guidance on a car parking demand rate for this land use has been sourced from the RTA's Guide to Traffic Generating Developments (2002). The RTA Guide indicates a peak parking demand of 3.0 spaces per 100 sqm of gross floor area for a gymnasium land use located in urban environment in close proximity to public transport services.

Application of this rate to the proposal equates to a peak car parking demand of 11 spaces.

4.3. Car Parking Allocation

A total of 278 on-site car parking spaces are proposed to be provided with the basement car parking levels. It is proposed that car parking is allocated as shown in Table 4.2.

Table 4.2: Proposed Car Parking Allocation

Use	Parking Requirement	Proposed Provision	Difference (+/-)
Supermarket	184 spaces	193 spaces	+9 spaces
Shop	25 spaces	25 spaces	-
Restricted Recreation Facility	11 spaces	11 spaces	-
Office	11 spaces	11 spaces	-
Medical Centre	14 spaces	14 spaces	-
Childcare Centre	24 spaces	24 spaces	-
Total	**269 spaces**	**278 spaces**	**+9 spaces**

4.4. Adequacy of Proposed Parking Provision

Based on the assessment provided above, the development proposal seeks to provide parking in accordance or in excess of the minimum statutory requirement for each of the proposed land uses, where a parking rate is nominated in the Planning Scheme. This is considered satisfactory.

Furthermore, it is proposed to provide 11 spaces on-site for the gymnasium land use. This provision is consistent with the anticipated parking demand associated with this land use.

On this basis, the provision of 278 on-site car parking spaces is considered to be appropriate to meet the parking demands of the development proposal.

4.5. Employee & Customer/Visitor Car Parking Demand

Notwithstanding the above assessment, which indicates that the overall on-site parking provision is acceptable, the site will generate differing levels of parking demand for employees (long-term) and customers/visitors (short-term) for each land use. The following assessment provides a breakdown of the estimated long-term and short-term parking demands that will be generated by the site. This will enable a proposed breakdown of long- and short-term car parking requirements and management for the basement car parking levels.

For the purpose of this assessment, it is conservatively assumed that the peak parking demand for each use will be equivalent to the proposed parking provision, as outlined in Table 4.2.

Supermarket

It is proposed to provide 193 spaces for the supermarket. This provision is equivalent to a rate of 5.23 spaces per 100 sqm, which exceeds the minimum statutory requirement for this use.

It is important to note that in our view, this parking provision is considered conservative on the high side for a number of reasons:

— Our office has recently (post-Covid-19 lockdown conditions) undertaken surveys at a number of supermarkets within metropolitan Melbourne. Those that were comparable to the subject site (i.e. similar floor area and surrounding neighbourhood context) experienced an average car parking demand in the range of 2.5-3.0 spaces per 100 sqm of floor area (between the weekday PM and Saturday midday peak hour periods).

— The provision of the Direct to Boot online ordering system allows customers to order their groceries online and pickup their goods within a scheduled system that does not require these customers to park their vehicle within an on-site car parking space under the traditional shopping method.

— It is also anticipated that the proposed supermarket will offer home deliveries to customers. Again, this will allow regular customers of the store to receive their groceries without the need to travel to and occupy an on-site car parking space.

— As such, it is evident that the provision of the Direct to Boot facility and home deliveries will result in reduced car parking demands for the proposed supermarket.

— Given the mixed-use nature of the site, there will be users that will seek to visit the supermarket in conjunction with a visit to one of the other uses proposed on the site (i.e. someone may choose to pick up some groceries after visiting either the gymnasium or medical centre). These multi-purpose trips allow an individual to utilise two or more of the proposed uses whilst only occupying one on-site parking space, which will subsequently reduce the overall parking demand generated by the site.

Based on our office's experience with other supermarket developments of comparable size and location within metropolitan Melbourne, the demand for employee parking is expected to be in the order of 0.50 spaces per 100 sqm.

Application of this rate to the proposed supermarket floor area generates an employee parking demand of 18 spaces. The balance of spaces will be available for customers.

Shop

It is proposed to provide 25 spaces for the specialty retail and specialty liquor tenancies. This provision is in accordance with the statutory rate of 3.5 spaces per 100 sqm of floor area.

As a typical transport engineering rule of thumb, employee parking demands for most retail uses generally comprises between 20-25% of the total car parking demand. Application of this rate equates to an employee parking demand of 5 spaces.

Restricted Recreation Facility (Gymnasium)

As described previously, the RTA Guide recommends a rate of 3.0 spaces per 100 sqm of floor area to accommodate the parking demands of a gymnasium in an urban environment in close proximity to public transport services. Based on this, it is proposed to provide 11 parking spaces for the gymnasium.

For the purpose of this assessment, it is assumed that 0.5 spaces of the 3.0 spaces per 100 sqm of floor area will comprise the employee parking demand for this use. Application of this rate to the proposed gymnasium floor area equates to an employee parking demand of 2 spaces.

Medical Centre

It is proposed to provide 14 spaces for the medical centre. This provision is in accordance with the statutory rate of 3.5 spaces per 100 sqm of floor area.

To understand the split between employee and visitor parking, it is assumed that 1 space will be required for each practitioner, with the balance of spaces available for visitors of the centre. Based on the preceding assumptions in this report, 4 spaces will be allocated to employees.

Childcare Centre

It is proposed to provide 24 spaces for the childcare centre. This provision is in accordance with the statutory rate of 0.22 space per child.

Based on our office's experience of childcare centre's provided within a mixed-use site, it is assumed 10 parking spaces will be sufficient to meet the employee parking demands of the centre. Therefore, the balance of 14 spaces will be available for visitors of the centre.

Office

It is proposed to provide 11 spaces for the office use. This provision is in accordance with the statutory rate of 3.0 spaces per 100 sqm of floor area.

Case study data held be our office indicates that this land use generates a very low demand for visitor parking, typically in the order of 0.1 spaces per 100 sqm of floor area. Application of this rate to the proposed floor area suggests that there is no requirement to provide any on-site visitor parking spaces for the office use[1].

Noting the differing temporal parking profiles of each of the proposed uses and that the overall on-site car parking provision exceeds the minimum statutory requirement for the site, there are expected to be parking spaces available to accommodate any ad-hoc visitor parking requirements for the office use.

Summary

Based on the assumptions presented above, Table 4.3 has been prepared to summarise the breakdown of employee and customer/visitor car parking demands for each of the proposed uses.

Table 4.3: Employee & Customer/Visitor Car Parking Demands

Land Use	Visitor / Customer Demand	Employee Demand	Total Demand
Supermarket	175 spaces	18 spaces	193 spaces
Shop	20 spaces	5 spaces	25 spaces
Restricted Recreation Facility	9 spaces	2 spaces	11 spaces
Medical Centre	10 spaces	4 spaces	14 spaces
Childcare Centre	14 spaces	10 spaces	24 spaces
Office	0 spaces	11 spaces	11 spaces
Total	**228 spaces**	**50 spaces**	**278 spaces**

Given the anticipated employee and visitor/customer parking demands presented above, Figure 4.2 and Figure 4.3 have been prepared to show the proposed location of the employee and visitor/customer parking spaces:

— The proposed location of employee spaces are shown in red.

— The proposed location of visitor/customer spaces are shown in blue.

[1] Application of this rate to the proposed floor area generates a peak visitor parking demand of 0.37 spaces, which has been rounded down to 0 for the purpose of this assessment.

Figure 4.2: Basement 01 - Proposed Employee vs Visitor/Customer Parking Locations

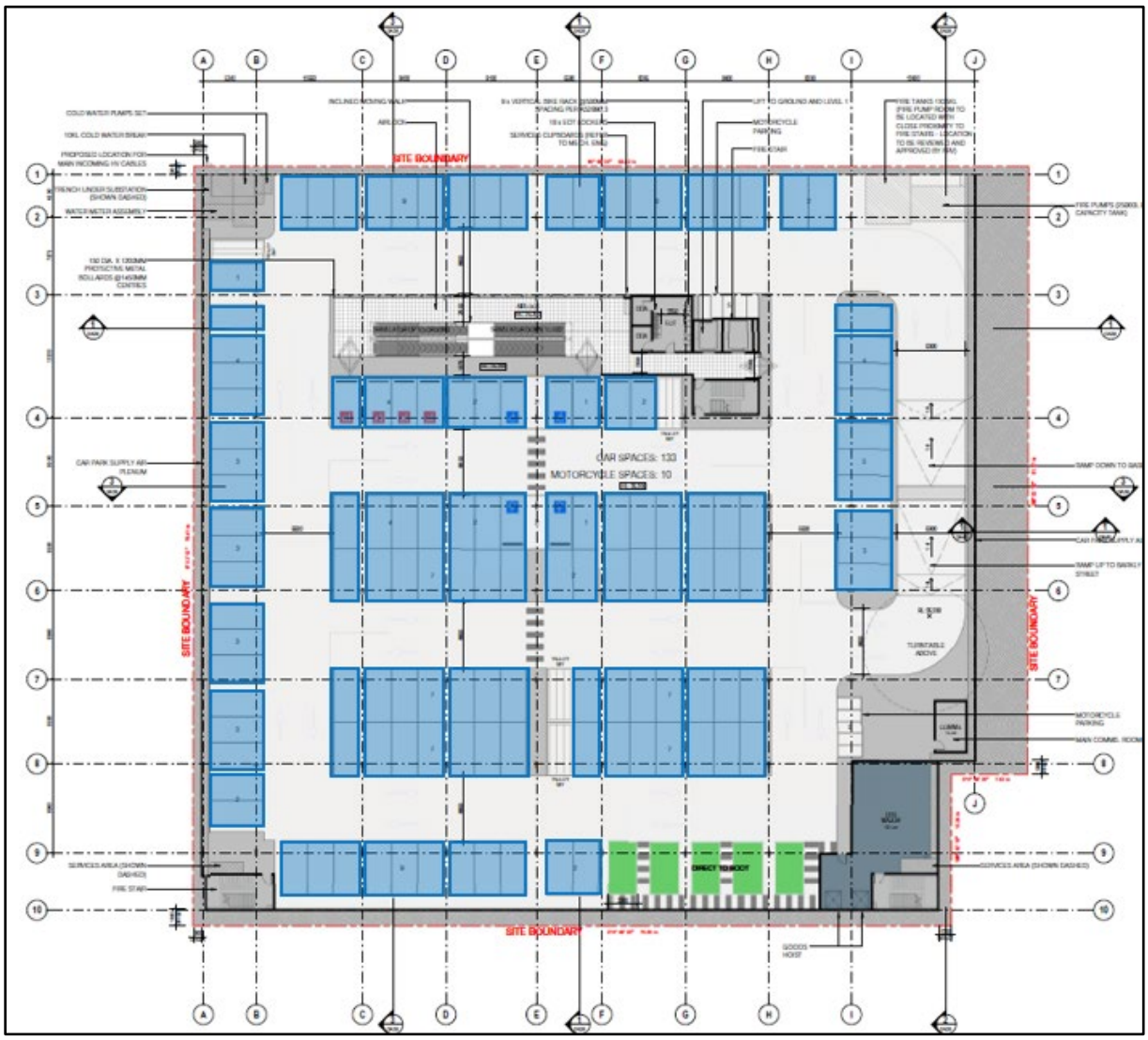
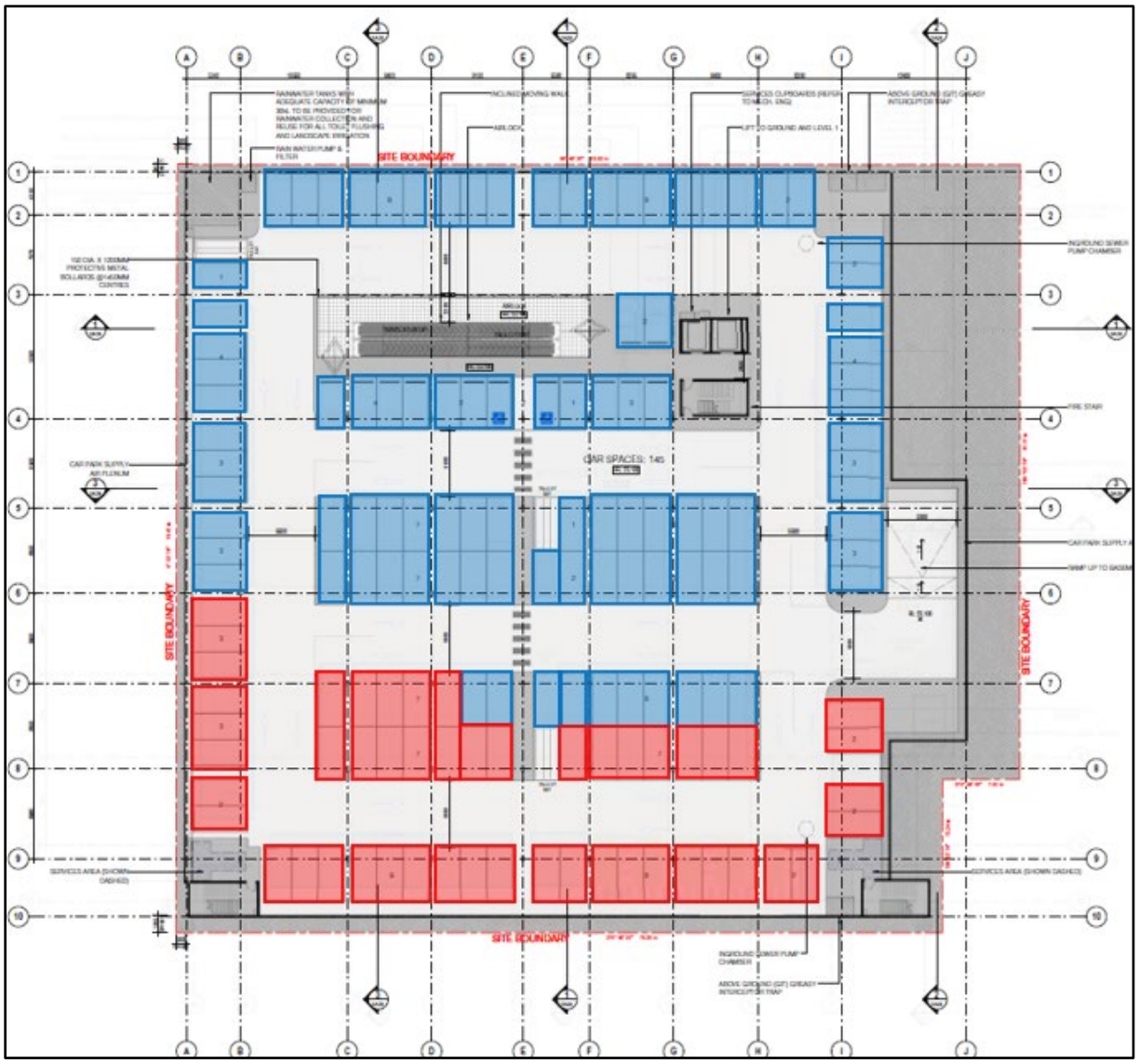


Figure 4.3: Basement 02 - Proposed Employee vs Visitor/Customer Parking Locations



It is recommended that a Car Parking Management Plan be prepared as a condition of permit for the proposed development in order to adequately manage the long- and short-term car parking demands.

4.6. DDA Car Parking

In addition to the statutory car parking requirements outlined in Clause 52.06 of the Maribyrnong Planning Scheme, the Building Code of Australia outlines the requirements for the provision of parking for people with disabilities.

The BCA rates for the provision of parking spaces for people with disabilities are outlined in Table 4.4.

Table 4.4: BCA Car Parking Requirements

Land Use	BCA Class	BCA Parking Rate
Office	Class 5	1 space for every 100 parking spaces or part thereof
Retail [1]	Class 6	1 space for every 50 parking spaces or part thereof
Medical Centre	Class 9A	1 space for every 50 parking spaces or part thereof
Childcare Centre & Restricted Recreation Facility	Class 9B	1 space for every 50 parking spaces or part thereof for up to 1,000 spaces

[1] Includes the supermarket and shop land uses.

In this instance, it is proposed that the majority of on-site parking will be allocated to the supermarket, with a comparatively smaller provision allocated to the other uses.

Noting the above, it is considered more appropriate to apply a blanket rate to the overall parking provision, rather than applying the relevant BCA parking rate to each of the proposed uses.

In this regard, the more conservative rate of *'1 space for every 50 parking spaces or part thereof'* has been applied to the overall parking provision to determine the required provision of parking spaces for people with disabilities.

Application of this rate to the total car parking provision of 278 spaces equates to a requirement to provide a total of 6 parking spaces for people with disabilities.

It is proposed to provide a total of 6 parking spaces for people with disabilities, including 4 spaces on basement level 01 and 02 spaces on basement level 02, in close proximity to the travellators. This provision is consistent with the above assessment and is considered acceptable.

5. Access and Car Parking Layout

5.1. Clause 52.06 Design Standard Assessment

An assessment against the relevant design standards of Clause 52.06-9 of the Maribyrnong Planning Scheme is provided below:

Design Standard 1 – Accessways

Design Standard 1 of Clause 52.06-9 relates to the design of accessways. The requirements of Design Standard 1 are assessed against the proposal in Table 5.1.

Table 5.1: Design Standard 1 Assessment - Accessways

Requirement	Comments
Must be at least 3 metres wide.	Satisfied – Accessways have been designed with a minimum single lane width of 3.3 metres.
Have an internal radius of at least 4 metres at changes of direction or intersection or be at least 4.2 metres wide.	Satisfied – The accessways and internal layout have been designed to be at least 4.2 metres wide at all changes of direction.
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre.	Not Applicable – No dead-end accessways are proposed within the car park.
Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheelbase of 2.8 metres.	Satisfied – A headroom of at least 2.1 metres is to be provided along the ramp and within the basement car parks.
If the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or Transport Zone 3, the accessway must be designed so that cars can exit the site in a forward direction.	Satisfied – As demonstrated in the swept paths, attached as Appendix B, the accessways have been designed so that all vehicles can exit the site in a forward direction.
Provide a passing area at the entrance at least 6.1m wide and 7m long if the accessway serves ten or more car parking spaces and is either more than 50m long or connects to a road in a Transport Zone 2 or Transport Zone 3.	Satisfied – The site access point has been designed to accommodate two-way simultaneous movement.
Have a corner splay or area at least 50% clear of visual obstructions extending at least 2m along the frontage road from the edge of an exit lane and 2.5m along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided.	Satisfied – Whilst not specifically notated on plans, pedestrian sight triangles are provided on both sides of the site access point, in excess of the requirements of the Maribyrnong Planning Scheme.
If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or Transport Zone 3, the access to the car spaces	Satisfied – All parking spaces are located greater than 6 metres from Barkly Street.

must be at least 6 metres from the road carriageway.	
If entry to a car space is from a road, the width of the accessway may include the road.	Not Applicable – Car parking spaces are accessed from internal accessways and to directly to/from an adjacent road.

Design Standard 2 - Car Parking Spaces

Design Standard 2 of Clause 52.06-9 relates to the design of car parking spaces. The requirements of Design Standard 2 are assessed against the proposal in Table 5.2.

Table 5.2: Design Standard 2 Assessment – Car Parking Spaces

Requirement	Comments
Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 of Design Standard 2.	Satisfied – All standard car parking spaces meet the dimensional requirements set out in Table 2 of Design Standard 2. Standard car parking spaces are 2.6m wide, at least 4.9m long and are accessed via at least a 6.6m wide aisle, in exceedance of the minimum standards.
A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1 of Design Standard 2, other than: — A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1. — A structure, which may project into the space if it is at least 2.1 metres above the space.	Satisfied – The car parking spaces have been designed to accord with Diagram 1 of Design Standard 2.
Car spaces in garages must be at least 6 metres long and 3.5 metres wide for a single space and 5.5 metres wide for a double space measured inside the garage.	Not Applicable – No garage car parking spaces are proposed.
Where parking spaces are provided in tandem (one space behind the other) an additional 500mm in length must be provided between each space.	Not Applicable – No tandem car parking spaces are proposed.
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	Not Applicable – No dwellings are proposed as part of the development.
Disabled car parking spaces must be designed in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 of Design Standard 2 by 500mm.	Satisfied – The accessible car parking spaces have been designed to accord with the dimensional requirements of AS/NZS 2890.6:2009.

Design Standard 3 - Gradients

Design Standard 3 of Clause 52.06-9 relates to the design of car parking spaces. The requirements of Design Standard 3 are assessed against the proposal in Table 5.3.

Table 5.3: Design Standard 3 Assessment - Gradients

Requirement	Comments
Accessway grades must not be steeper than 1:10 (10%) within 5 metres of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage. This does not apply to accessways serving three dwellings or less.	Satisfied – The accessways have been designed with a gradient no steeper than 1:10 for the first 5.0 metres from the property boundary, thereby satisfying this requirement.
Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 of Design Standard 3 and be designed for vehicles travelling in a forward direction.	Satisfied - The proposed grades are in accordance with Table 3 of Design Standard 3, with grades no steeper than 1:6.
Where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5%) for a summit grade change, or greater than 1:6.7 (15%) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming. Plans must include an assessment of grade changes of greater than 1:5.6 (18%) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority.	Satisfied - Appropriate transition sections have been provided to prevent scraping or bottoming.

The assessment indicates that the access arrangements and car parking layouts have been designed appropriately and in general accordance with the requirements of the Maribyrnong Planning Scheme and/or AS/NZS 2890.1:2004.

5.2. Direct to Boot Facility

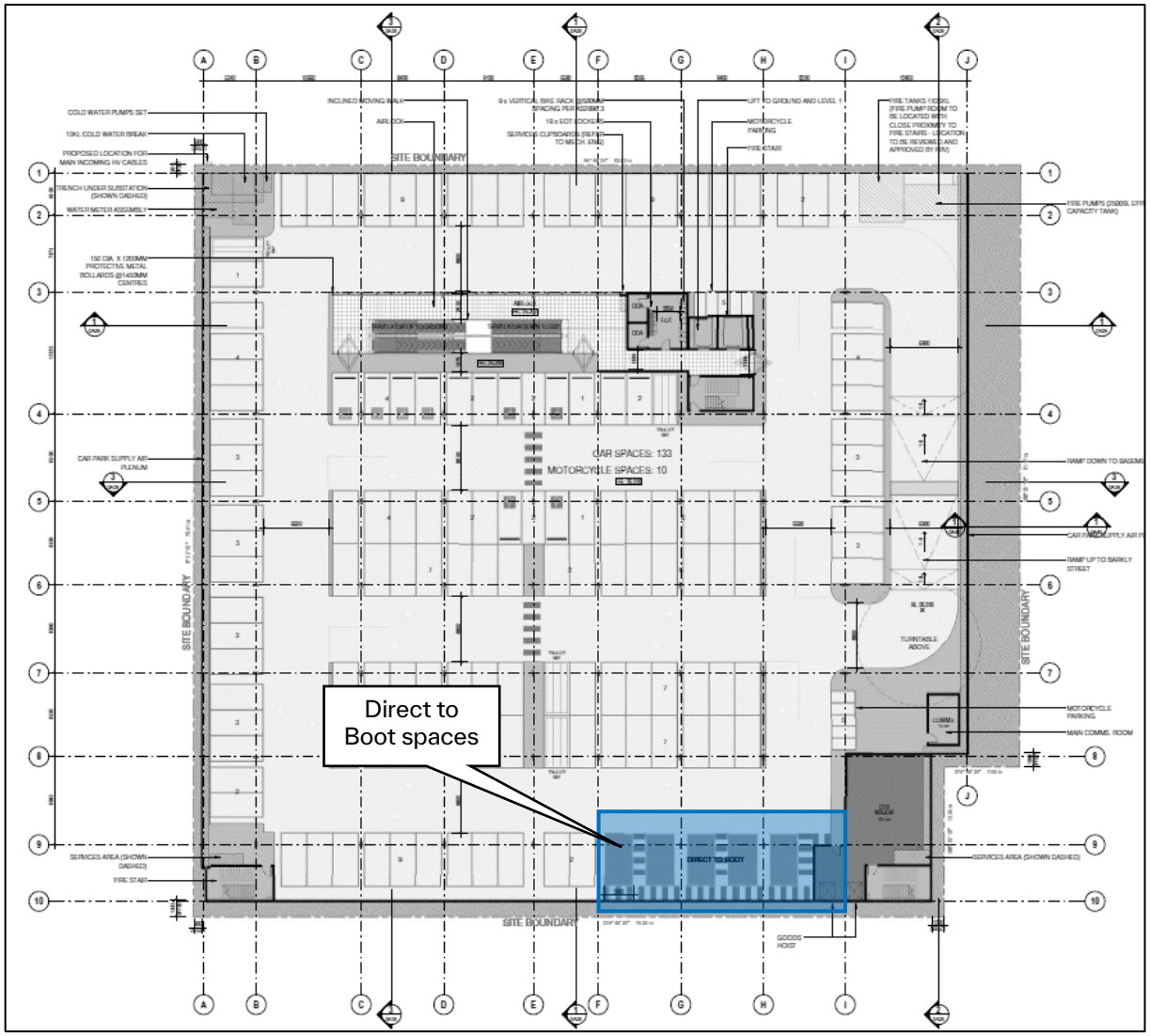
Five 'Direct to Boot' spaces are proposed for the supermarket within Basement Level 1 of the car park.

The 'Direct to Boot' spaces will be 3.0m wide and 5.4m long. This is in excess of the requirements of the Planning Scheme and in line with the Woolworths design requirements.

A swept path assessment has been completed which demonstrates that a 99th percentile vehicle can access the Direct to Boot facility (refer to Appendix C).

The location of the Direct to Boot spaces are shown in Figure 5.1.

Figure 5.1: Direct to Boot Facility



(Source: i2c Architects – Proposed Basement 01 Plan)

5.3. Swept Path Assessment

An assessment (refer to Appendix C) of the accessibility to/from the site and critical parking bays using the 'Autodesk Vehicle Tracking' software has been conducted.

The B99 and B85 (99th and 85th percentile car, as defined by AS2890.1:2004) were used in the assessment and it was found that the site access arrangements and each space could be accessed (ingress and egress) in a satisfactory manner, with vehicles able to enter and exit the site in a forward direction.

The assessment indicates that the access arrangements and car parking layouts have been designed appropriately and in accordance with the requirements of the Maribyrnong Planning Scheme and/or the relevant sections of AS/NZS 2890.1:2004.

5.4. Barkly Street / Summerhill Road Concept Layout Plan

As described previously in this report, vehicle access to the development will be via a modification of an existing vehicle crossover in the northeast corner of the site on Barkly Street, providing access to the basement car park levels and loading area on ground level.

To facilitate vehicle movement to/from this primary vehicle access on Barkly Street, it is proposed to upgrade the intersection of Barkly Street / Summerhill Road to provide four leg traffic signal control. In our view, this is the best available access option for the site given the ability to connect into an existing intersection to maximise traffic capacity, as well as avoid a site access location at midblock and in close proximity of the adjacent signalised intersections.

A Concept Layout Plan (CLP) has been prepared for the proposed upgrade of this intersection, with key details summarised below:

— New 40-metre-long right turn lane along the western approach of Barkly Street to facilitate right turn movements into the site.

— Relocation of the bus stops along Barkly Street, in accordance with Council's Barkly Streetscape Plan.

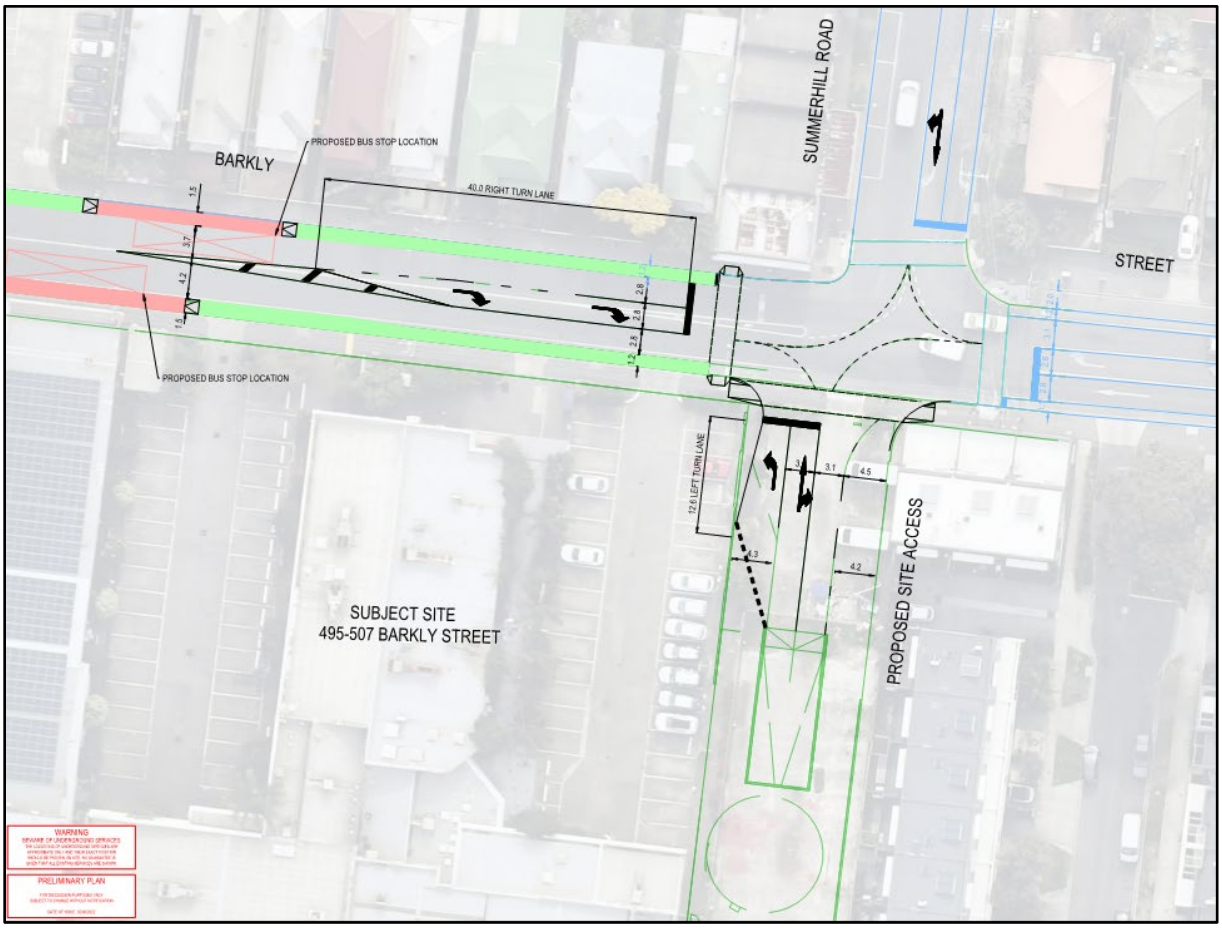
— Raised and painted bicycle lane.

— New southern leg of the intersection comprising a left turn lane and shared through/right lane.

— Proposed new signalised pedestrian crossings on the west and south legs of the intersection.

An excerpt of the CLP is provided in Figure 5.2 below, with a full copy of the CLP and associated swept paths are provided in Appendix D of this report.

Figure 5.2: Concept Layout Design



6. Sustainable Transport Assessment

6.1. Bicycle Parking - Clause 52.34 Assessment

Clause 52.34 of the Maribyrnong Planning Scheme sets out the statutory requirements to provide bicycle parking for new developments.

The statutory bicycle parking requirements for the proposed development are set out in Table 6.1.

Table 6.1: Statutory Bicycle Parking Requirement

Land Use	Type	Size	Statutory Parking Rate	Statutory Requirement
Shop [1]	Employee	4,401.5 sqm	1 to each 600sqm of floor area, if the floor area exceeds 1,000sqm.	7 spaces
	Visitor		1 to each 500sqm of floor area, if the floor area exceeds 1,000sqm.	9 spaces
Minor Sports & Recreation Facility [2]	Employee	384 sqm	1 to each 4 employees [3]	1 space
	Visitor		1 space to each 200sqm of net floor area	2 spaces
Office	Employee	368 sqm	1 to each 300sqm of floor area, if the floor area exceeds 1,000sqm.	0 spaces
	Visitor		1 to each 1,000sqm of floor area, if the floor area exceeds 1,000sqm.	0 spaces
Medical Centre	Employee	425 sqm 4 practitioners [4]	1 to each 8 practitioners	1 space
	Visitor		1 to each 4 practitioners	1 space
Childcare Centre	Employee	1,485 sqm 110 children	No rate provided	0 spaces
	Visitor			0 spaces
Total				**21 spaces**

[1] Includes the supermarket, specialty retail and bottle shop floor areas

[2] Restricted recreation facility (gymnasium) is nested under the 'Minor Sports & Recreation Facility' land use within Clause 73.04 of the Maribyrnong Planning Scheme.

[3] A total of 4 employees for the gym land use has been assumed for the purpose this assessment.

[4] A total of 4 practitioners for the medical centre has been assumed for the purpose of this assessment.

Based on the above assessment, the development has a requirement to provide a total of 21 bicycle parking spaces, including 9 spaces for employees and 12 spaces for visitors.

Shower / Change Room Requirements

In addition to the bicycle parking requirements outlined above, Table 2 and 3 within Clause 52.34-5 of the Maribyrnong Planning Scheme requires 1 shower be provided for the first 5 employee parking spaces and 1 shower for each subsequent 10 employee bicycle parking spaces (if 5 or more employee bicycle parking spaces are required). A change room or direct access to a communal change room must be provided for each shower.

It is proposed to provide an EOT facility on Basement 01, comprising 2 showers / change rooms. This provision exceeds the requirement for the site and is considered acceptable.

6.2. Bicycle Parking Provision

It is proposed to provide a total of 23 bicycle parking spaces on-site to meet the bicycle parking requirements of the development.

A total of 9 spaces, 18 lockers and 2 showers / change rooms will be provided within the EOT facility on Basement 01 for employees. The EOT facility is accessed directly from the airlock corridor providing access between the basement carpark and the travelators. Cyclists can access this facility via the lifts located within the ground level mall. The provision of 9 employee parking spaces meets the requirement for the site and is acceptable.

A total of 14 visitor parking spaces will be provided within the ground level, provided in various accessible locations along the frontage to Barkly Street. The provision of 14 visitor bicycle parking spaces exceeds the requirement for the site and is considered acceptable.

6.3. Bicycle Parking Layout

The bicycle parking spaces throughout the development have been designed as a mix of horizontal and vertical spaces. The layout of the proposed bicycle parking spaces is described below.

Employee Spaces

9 bicycle parking spaces are proposed for employees within a vertical arrangement (within a Ned Kelly style arrangement or similar). Bicycle parking spaces are 1.2 metres long and 0.5 metres wide, accessed from a 1.8-metre-wide aisle, in exceedance of the design requirements outlined in AS2890.3:2015.

Visitor Spaces

14 bicycle parking spaces are proposed for visitors within a horizontal arrangement (within an Arc de Triomphe style arrangement or similar). Bicycle parking spaces are 1.8 metres long and 0.5 metres wide, accessed from a minimum 1.5-metre-wide aisle, in accordance with AS2890.3:2015.

It is noted that the existing footpath within the public realm forms the access aisle for these spaces. However, when considering the activated pedestrian interface proposed by the development and the future raised bicycle lanes along Barkly Street, this arrangement is considered appropriate in this instance.

Summary

The proposed bicycle parking provision provides 61% of the total bicycle parking provision within an at-grade horizontal arrangement, which exceeds the requirement outlined in AS2890.3:2015 that 20% of bicycle parking must be provided in a horizontal arrangement.

Accordingly, it is considered that bicycle parking spaces have been designed appropriately, in accordance with the relevant sections of AS2890.3:2015.

Recommended bicycle parking specifications are provided in Appendix E of this report.

6.4. Motorcycle Parking

The Maribyrnong Planning Scheme does not outline any specific requirements for the provision of motorcycle parking spaces on-site. However, in order to cater for the potential demand of the transport mode and provide viable alternatives to car-based travel, a total of 10 motorcycle spaces are proposed within the Basement 01 car park.

Motorcycle parking spaces are 1.2 metres wide and 2.5 metres long, consistent with the requirements of Figure 2.7 within AS2890.1:2004 and are therefore considered acceptable.

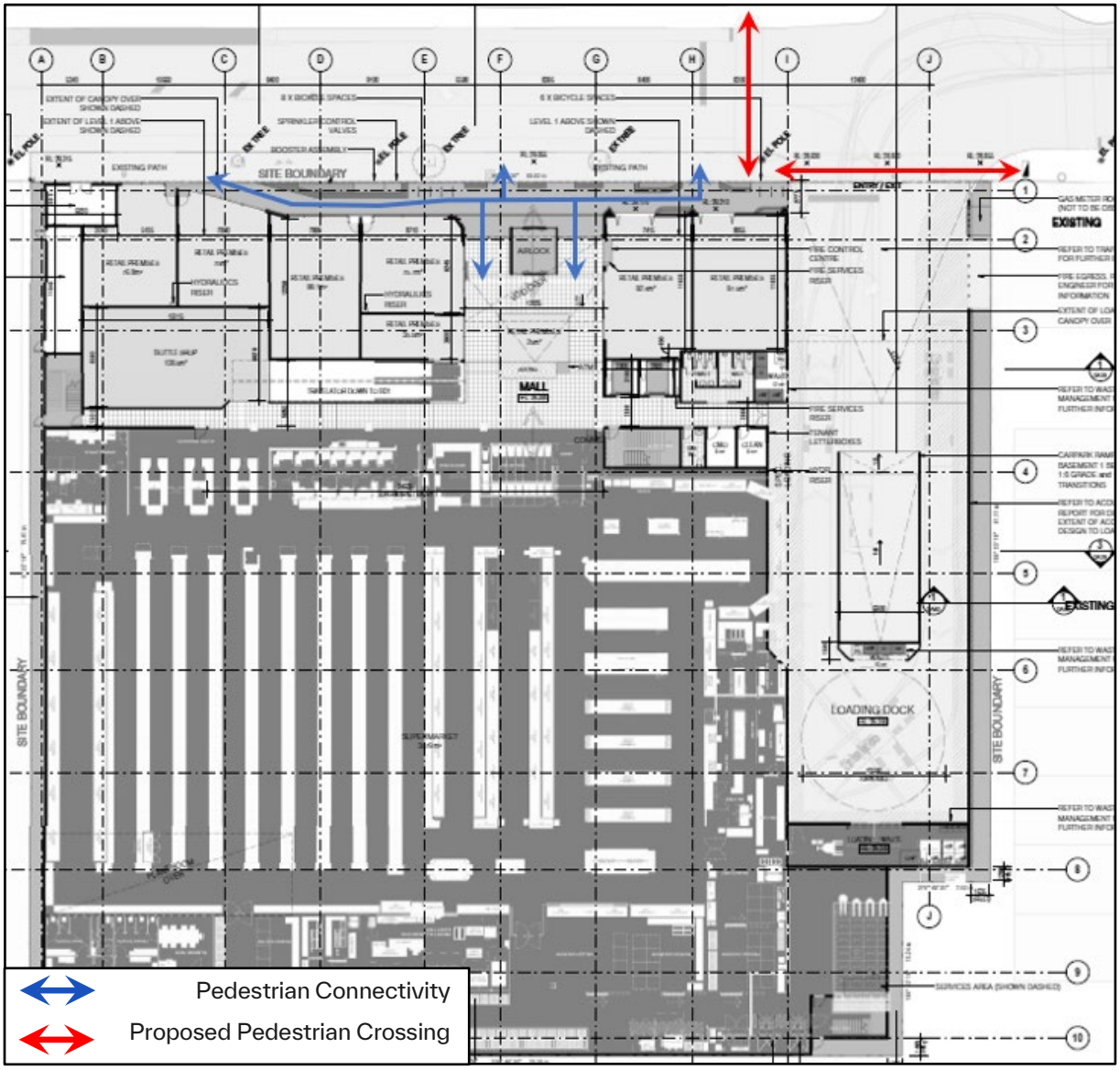
6.5. Pedestrian Connectivity

The development proposal is seeking to provide an activated pedestrian interface along the site frontage, which will match into the future streetscape of Barkly Street. Furthermore, signalised pedestrian crossings are proposed on the west and south legs of the Barkly Street / Summerhill Road intersection as part of the proposed intersection works. The proposed pedestrian crossings will improve pedestrian permeability to/from the site.

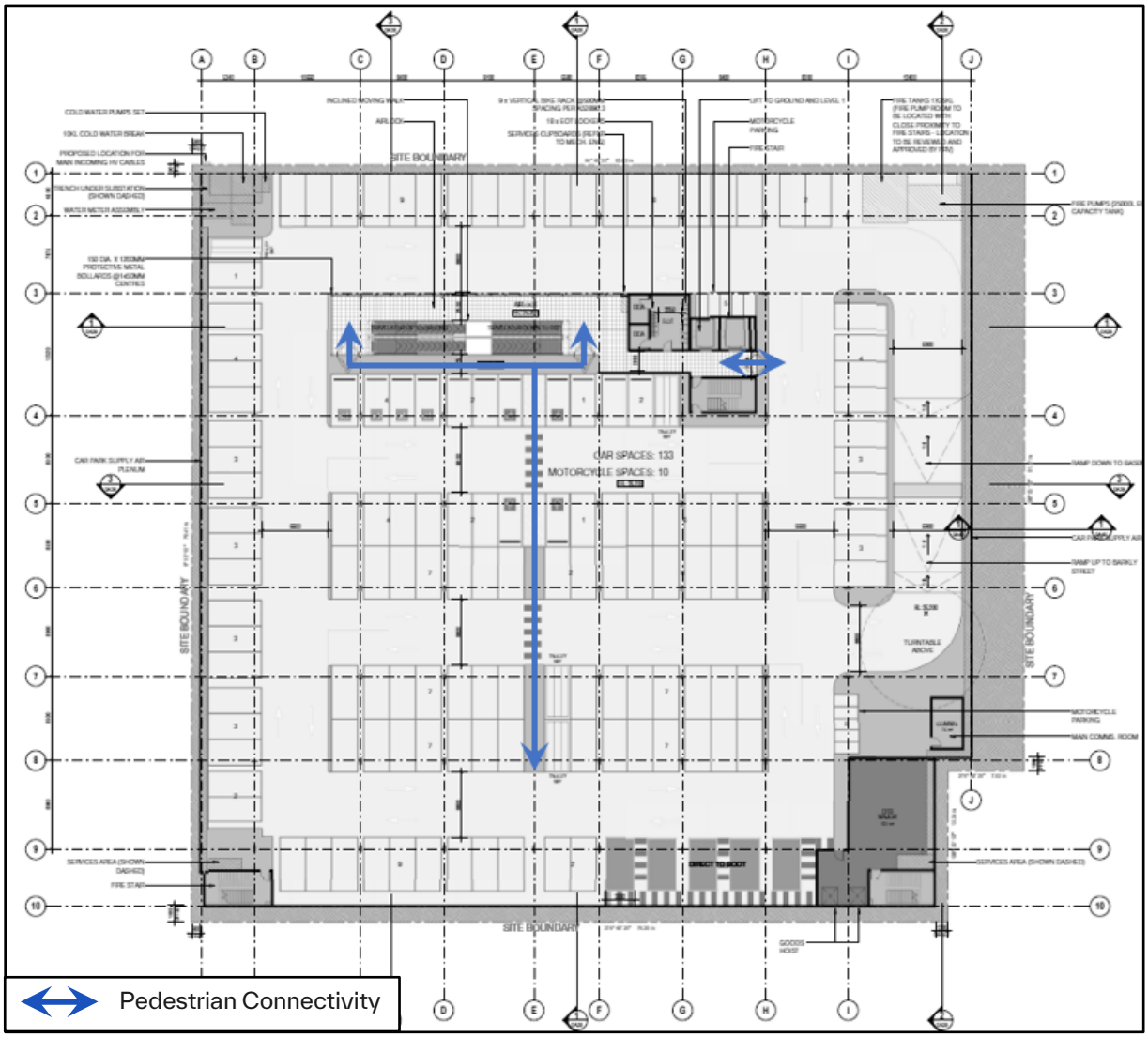
The design also includes a north-south pedestrian connection through each level of the basement car park to provide raised pedestrian priority crossings within the site.

Figure 6.1 illustrates the pedestrian pathways and connectivity for internal and external facilities.

Figure 6.1: Pedestrian Connectivity



(Source: i2c Architects – Proposed Ground Floor Plan)



(Source: i2c Architects – Proposed Basement 01 Plan)

7. Loading & Waste Collection

7.1. Statutory Requirements

Clause 65.01 'Decision Guidelines' of the Maribyrnong Planning Scheme outlines the provision of loading requirements and states the following:

"Before deciding on an application or approval of a plan, the responsible authority must consider as appropriate:

— *The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts."*

7.2. Loading Arrangements

Overview

A dedicated loading and waste collection facility is proposed on Ground Level, south of the ramp between Ground Level and Basement 01, which will cater for all loading/unloading and waste collection requirements of the subject site.

This facility will be access via the proposed southern leg of the Barkly Street / Summerhill Road signalised intersection.

The loading facility will comprise the following:

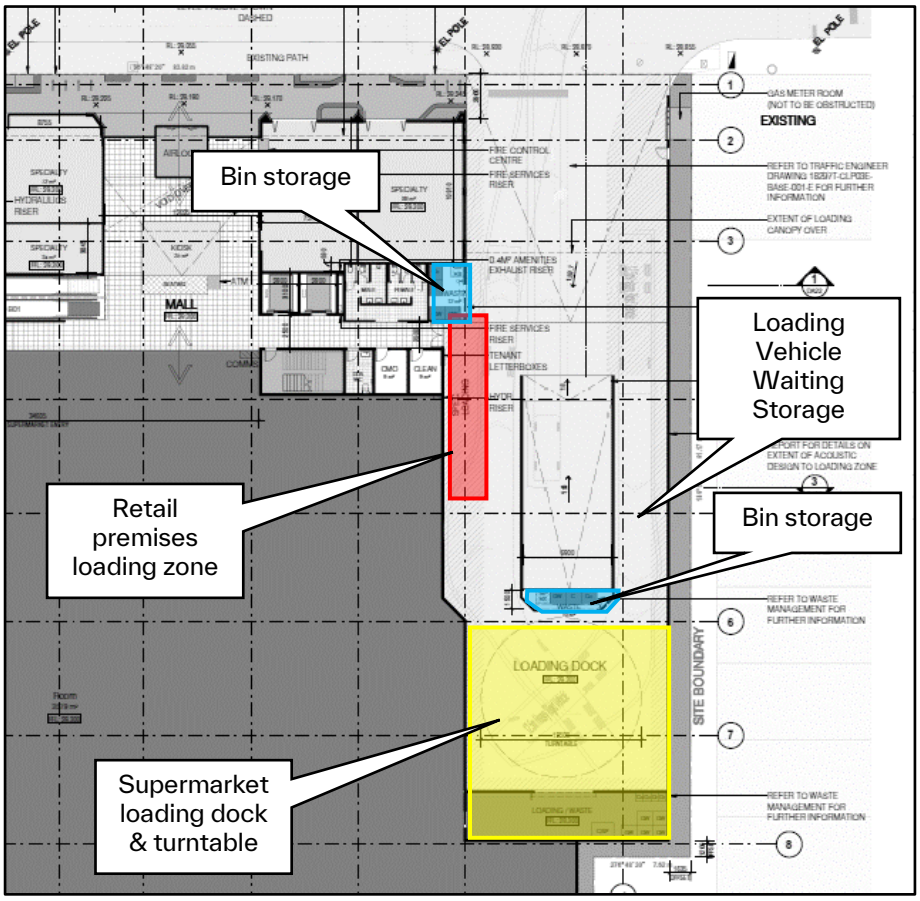
— A 12.5-metre-wide turntable in the area fronting a loading dock for the supermarket.

— A dedicated loading zone for the specialty retail tenancies.

— Two dedicated bin storage areas.

The layout of the proposed loading facility is shown in Figure 7.1.

Figure 7.1: Loading Area Layout



(Source: i2c Architects – Proposed Ground Floor Plan)

Supermarket Loading Arrangements

Deliveries and collections for the supermarket will be through the supermarket loading dock. It is proposed that the largest loading vehicle to service the supermarket will be a 12.5-metre-long heavy rigid vehicle (HRV as defined by AS2890.2:2018).

A swept path assessment has been completed which indicates that the 12.5-metre-long HRV can adequately undertake the following movements:

— Enter the site via the Barkly Street access in the north-east corner of the site and travel south along the internal access way on the eastern side of the basement ramp.

— Enter the loading dock turn table arrangement and rotate into position.

— Exit the site in a forward direction and heading north along the western side of the internal accessway.

— Depart the site in a forward direction onto Barkly Street or Summerhill Road.

— Based on the proposed design of the Barkly Street / Summerhill Road intersection and in order to minimise crossing width distance for pedestrians, loading vehicles will be limited to departing the site to the north or east (i.e. no left turn movements).

The results of this swept path assessment are shown within Appendix C of this report.

Based on information provided by the Applicant, the anticipated frequencies of deliveries are set out in

Table 7.1. It is noted that these are typical delivery frequencies based on the size and location of the store and that exact timings of deliveries on any given day may fluctuate due to various external factors.

Table 7.1: Supermarket Typical Delivery Frequency

Type	Approximate Time and Frequency
Produce	6:30am – 8:30am x 2 per day
MSRDC	9:30am – 1:30pm - up to 3 per day
Americold	2:30pm – 4:30pm x 1 per day
MLDC	5:00pm – 7:00pm x 1 per day

Table 7.1 indicates that the supermarket is expected to generate in the order of 7 truck movements per day, within specified time periods to ensure sufficient management of vehicle movements within the loading facility. The loading schedule is set out to ensure that the various deliveries arrive at separate times and do not create a conflict for use of the turntable and loading area. In the event that a loading vehicle arrives on-site whilst the loading dock is occupied, there is sufficient space for up to two 12.5-metre-long trucks to store within the accessway on the eastern side of the ramp without encroaching access to the basement levels.

This kind of arrangement has already been adopted in other supermarket loading docks on constrained sites, where a turntable is accessed directly from an external road. A similar operational example is Coles in Middle Camberwell, directly accessed from Riversdale Road.

To enforce and ensure that this delivery scheduling is adhered to, it is recommended that a Loading Management Plan is prepared for the development as a condition of permit. At a high level, this would include details of the following operational measures, amongst other relevant items:

— Maximum vehicle sizes allowed on-site.

— A scheduling system to minimize conflicts between delivery vehicles and avoid any queuing.

— A deliveries manager or management system to organise and schedule deliveries, ensuring that there are no clashes for use of the dock and ensure sufficient loading time is allocated for the relevant size of each delivery.

— Identify loading area operational times for noise control purposes.

— Maintenance schedule for the turntable.

Subject to the preparation of a suitable Loading Management Plan as a condition of permit, the proposed design and management of the loading area is considered to be sufficient to cater for the deliveries and waste collection requirements of the site.

Specialty Retail & Other Uses Loading Arrangements

Loading arrangements for the other uses on the site are expected to be as follows:

— Given the proposed size of each of the specialty retail tenancies, each tenancy could be expected to receive one or two deliveries in a typical week.

— Deliveries to the other uses proposed on the site (gymnasium, medical centre, office, childcare centre) are expected to occur on an ad-hoc basis and will therefore occur less frequently.

In this regard it is anticipated that loading activities associated with the other uses will occur on a daily basis.

A dedicated specialty loading zone is proposed adjacent to the accessway on the western side of the ramp, as shown in Figure 7.1, which is expected to accommodate the loading and unloading activities associated with the specialty retail tenancies and other uses.

It is proposed that the largest vehicle to access this loading area will be a B99 (which is considered an appropriate approximation for most delivery vans and courier vehicles). A swept path assessment has been undertaken which demonstrates that a B99 is able to circulate around the southern end of the ramp and then park within the specialty loading zone in a position that does not obstruct a larger loading vehicle

using the loading dock from departing the site. Once loading activities are complete, the B99 is able to depart the site in a forward direction.

It is expected that any loading activities for the specialty retail tenancies or other uses that require a larger vehicle to access the site can be completed via the supermarket loading dock.

7.3. Loading Vehicle Contingency

As per Figure 7.1, there is an ability for any loading vehicle waiting to use the loading bay turntable to store on the eastern side of the ramp. Given the typical low daily volumes of loading truck arrivals, this waiting area is unlikely to be required, however is provided as a contingency.

The management of loading vehicle movements can be outlined within the recommended Loading Management Plan that would be prepared as a condition of permit.

7.4. Waste Collection

A waste management plan (WMP) has been prepared for the development by Ratio Consultants.

Two dedicated waste rooms are proposed on ground level, as shown in Figure 7.1. Based on details within the WMP, it is understood that waste collection will be undertaken by a private contractor, using a 9.8-metre-long rear-loader.

It is expected that the waste truck will prop on the turntable during collection times and that waste bins will be wheeled from the waste rooms into position behind the waste truck. Once waste collection is complete, the truck will rotate using the turntable and depart the site in a forward direction.

Noting that a swept path assessment has been undertaken which demonstrates that each of these movements can be completed by a 12.5-metre-long HRV, the waste truck is expected to be able to complete these movements in a suitable manner.

7.5. Adequacy of Loading & Waste Collection Arrangements

Having regard for the discussions presented above, the proposed loading and waste collection arrangements for the development are considered acceptable, subject to the preparation of a Loading Management Plan as a Condition of Permit.

For reference, the abovementioned swept path assessment is provided within Appendix C of this report.

8. Traffic Assessment

8.1. Overview

The following assessment is based on traffic activity during the PM weekday commuter peak and Saturday midday peak given that traffic generation peaks during these periods based on the proposed on-site land uses. Typically, low traffic activity is exhibited for retail land uses during the weekday AM peak hour period and as such, this peak hour was omitted.

The various uses on site are expected to generate peak traffic movements at different times of the day, which is discussed as follows.

8.2. Traffic Generation[2]

Supermarket Traffic Generation

Guidance on the traffic generation rates for the proposed supermarket has been sought from recent (post Covid 19 lockdown conditions) traffic surveys undertaken (in August 2022) at a number of standalone Woolworths and Coles supermarkets within metropolitan Melbourne.

The results of those stores that are comparable to the subject site (i.e. similar floor area and surrounding neighbourhood context) are summarised in Table 8.1.

Table 8.1: Summary of Traffic Survey Results

Description	Size	Surveyed Traffic Volumes and Associated Generation Rates			
		Friday PM		Saturday Midday	
		Vehicle Movements	Traffic Generation Rates	Vehicle Movements	Traffic Generation Rates
Woolworths Supermarket – 72 Upper Heidelberg Road, Ivanhoe	3,748 sqm	194 vehicle movements	5.18 movements per 100sqm	218 vehicle movements	5.82 movements per 100sqm
Woolworths Supermarket – Canning Street, North Melbourne	4,321 sqm	254 vehicle movements	5.88 movements per 100sqm	219 vehicle movements	5.07 movements per 100sqm
Coles Supermarket – 380 Bay Street, Brighton	3,800 sqm	311 vehicle movements	8.18 movements per 100sqm	391 vehicle movements	10.29 movements per 100sqm

[2] Inbound & outbound traffic generation values have been rounded to the nearest whole number throughout this assessment.

Coles Supermarket – 369 High Street, Kew	3,240 sqm	168 vehicle movements	5.19 movements per 100sqm	240 vehicle movements	7.41 movements per 100sqm
Woolworths Supermarket – 451 Lower Heidelberg Road, Heidelberg	4,270 sqm	348 vehicle movements	8.15 movements per 100sqm	374 vehicle movements	8.76 movements per 100sqm
Coles Supermarket – 751 Riversdale Road, Camberwell	3,800 sqm	272 vehicle movements	7.16 movements per 100sqm	285 vehicle movements	7.50 movements per 100sqm

The survey results shown in Table 8.1 have been undertaken post Covid-19 lockdowns and consequently capture the changes in travel patterns that are becoming evident with a large portion of the workforce continuing to adopt hybrid work arrangements (i.e. reduced concentration of traffic movements during the AM and PM peak periods as people who are working from home are able to complete errands at convenient times throughout the day). Accordingly, these survey results are considered the best estimation of the traffic generating characteristics of the proposed supermarket in Footscray.

In this case, the surveyed traffic rates for these six abovementioned supermarket sites have been averaged out to be adopted for the proposed Footscray supermarket development. These average traffic generation rates are presented below:

— Weekday PM peak: 6.62 peak hour vehicle movements per 100sqm

— Saturday midday peak: 7.47 peak hour vehicle movement per 100sqm.

An even 50:50 split of in/out traffic has been assumed in all peaks given the typical short-term visits to a supermarket.

Applying the preceding assumptions to the proposed supermarket associated with the proposal result in the following traffic movements, as summarised in Table 8.2.

Table 8.2: Supermarket Traffic Generation

	PM Peak	Saturday Peak
Inbound	122 vph	138 vph
Outbound	122 vph	138 vph
Total	**244 vph**	**276 vph**

Retail Premises Traffic Generation

Guidance on the traffic generation from the bottle shop and specialty retail tenancies has been sought from the RTA Guide to Traffic Generating Developments (2002), which nominates the following peak hour traffic generation rates for retail tenancies:

— Weekday PM peak: 5.6 peak hour vehicle movements per 100sqm

— Saturday midday peak: 10.7 peak hour vehicle movement per 100sqm.

Given the mixed-use nature of the site, it is expected that a number of users will visit the specialty retail tenancies in conjunction with a visit to another use on the site (i.e. a supermarket user or office worker ordering a coffee from the specialty retail café, etc.). Additionally, this land use typically generates a large portion of walk-up trade which is expected within Barkly Village and noting the pedestrian permeability of the site along its street frontage to Barkly Street.

In this regard, the specialty retail tenancies are expected to generate traffic at a lower rate than the rates nominated in the RTA Guide. Accordingly, a discount of 50% has been applied to each of the abovementioned traffic generation rates.

An even 50:50 split between inbound/outbound traffic has also been assumed during both peak hour periods, given the typical short-term visits to retail shops.

Based on the assumptions presented above, the traffic generation associated with the specialty retail tenancies is presented in Table 8.3.

Table 8.3: Specialty Retail Traffic Generation

	PM Peak	Saturday Peak
Inbound	10 vph	19 vph
Outbound	10 vph	19 vph
Total	**20 vph**	**38 vph**

Office Traffic Generation

Based on traffic surveys undertaken by our office commercial developments within Melbourne, data indicates that 50% of parking spaces allocated to employees will turnover during the peak hour periods. In this instance, all parking spaces allocated to the office will be used by employees. Therefore, this traffic generation rate has been applied to proposed office parking allocation of 11 spaces.

It is assumed that during the PM peak 90% of movements will be outbound movements and 10% will be inbound movements. Furthermore, the office is not expected to be operational on the weekend and subsequently will not generate any traffic during the Saturday peak hour.

A summary of the estimated traffic generation from the office is provided in Table 8.4.

Table 8.4: Office Traffic Generation

	PM Peak	Saturday Peak
Inbound	1 vph	0 vph
Outbound	5 vph	0 vph
Total	**6 vph**	**0 vph**

Restricted Recreation Facility (Gymnasium) Traffic Generation.

The traffic generation from the gymnasium component of the development has been calculated on a first principles basis. From a review of patronage data[3], it appears that the busiest periods for a gym typically occur outside of the road network peak hour periods. This is expected as it is commonplace for people to visit the gym either in the morning before work or in the evening after work.

For the purpose of this assessment, it is assumed that 50% of parking spaces allocated to the gym will turnover during the peak hour periods.

A summary of the estimated traffic generation from the gymnasium is provided in Table 8.5.

[3] Source: Google

Table 8.5: Gymnasium Traffic Generation

	PM Peak	Saturday Peak
Inbound	3 vph	3 vph
Outbound	3 vph	3 vph
Total	**6 vph**	**6 vph**

Medical Centre Traffic Generation

The traffic generation from the medical centre has been calculated on a first principles basis.

As discussed in Section 4.5 of this report, it is proposed to provide a total of 14 spaces for the medical centre, comprising 4 employee spaces and 10 visitor spaces.

For the purpose of this assessment, it is assumed that 50% of the visitor spaces will turnover during each of the peak hour periods. It is also conservatively assumed that all the employee spaces will turnover during the PM peak hour, a result of staff heading home after work.

A summary of the estimated traffic generation from the medical centre is provided in Table 8.6.

Table 8.6: Medical Centre Traffic Generation

	PM Peak	Saturday Peak
Inbound	3 vph	3 vph
Outbound	7 vph	3 vph
Total	**10 vph**	**6 vph**

Childcare Centre Traffic Generation

Guidance on the traffic generation from the proposed childcare centres has been sought from the RTA Guide, which nominates the following traffic generation rate during the PM peak hour:

— 0.7 vehicle movements per child.

An even 50:50 split between inbound/outbound traffic has also been assumed during the PM peak hour period, given that visits to the childcare centre will comprise parents quickly picking up their child at the end of the day. Furthermore, it is noted that the childcare centre is not expected to be operational on the weekend and subsequently will not generate any traffic during the Saturday peak hour.

A summary of the estimated traffic generation from the childcare centre is provided in Table 8.7.

Table 8.7: Childcare Centre Traffic Generation

	PM Peak	Saturday Peak
Inbound	39 vph	0 vph
Outbound	39 vph	0 vph
Total	**78 vph**	**0 vph**

Total Traffic Generation

Based on the traffic generation estimates presented above for each land use, the overall site generated traffic generation is presented below in Table 8.8.

Table 8.8: Total Traffic Generation

	PM Peak	Saturday Peak
Inbound	178 vph	161 vph
Outbound	186 vph	163 vph
Total	**364 vph**	**326 vph**

8.3. Traffic Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development will be influenced by a number of factors, including the following:

— Configuration of the arterial road network in the immediate vicinity of the subject site

— Existing operation of intersections providing access between the local and arterial road network

— Distribution of households in the vicinity of the subject site

— Surrounding employment centres, retail centres and schools in relation to the subject site

— Likely distribution of employee's residences in relation to the subject site

— Configuration of access points to the subject site.

Having consideration to the above, in this instance the directional distribution of traffic has been assumed as follows:

— 20% to/from the north

— 40% to/from the east

— 40% to/from the west.

8.4. Characteristic Trip Types

It is important to investigate the characteristics of trips generated by the supermarket as there are different types of trips which may occur. These different trip types correspond to:

— 'Primary Trips'

— 'Link-diverted Trips'

— 'Non-link-diverted Trips'.

Primary trips and link-diverted trips involve a vehicle either making a special trip or a modification of the route to an existing trip. Non-link-diverted trips, on the other hand, correspond to those trips which do not involve a diversion from the route that would otherwise have been taken, or in other words are trips generated by passing traffic.

The important distinction here is that it is only primary trips and link-diverted trips which impact upon the external road network. Non-link-diverted trips are already present on the adjacent road network, and although these trips need to be considered in the design of access driveways, turning lanes and so on, they do not constitute additional traffic per se.

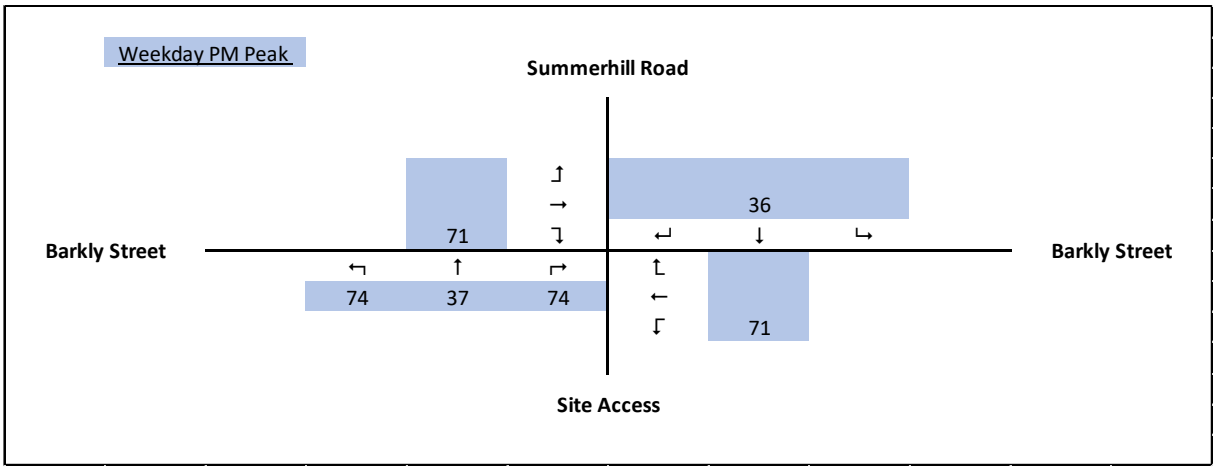
A significant proportion of traffic is anticipated to access the site during the road network peak hour as non-link-diverted trips. In this regard, reference is made to the 'Austroads Guide to Traffic Management Part 12: Traffic Impacts of Developments' (2016). The Austroads Guide indicates that for shopping centres between 3,000 – 20,000sqm, typically 28% of site generated traffic is considered to be passing trade accessing the site via non-link-diverted trips.

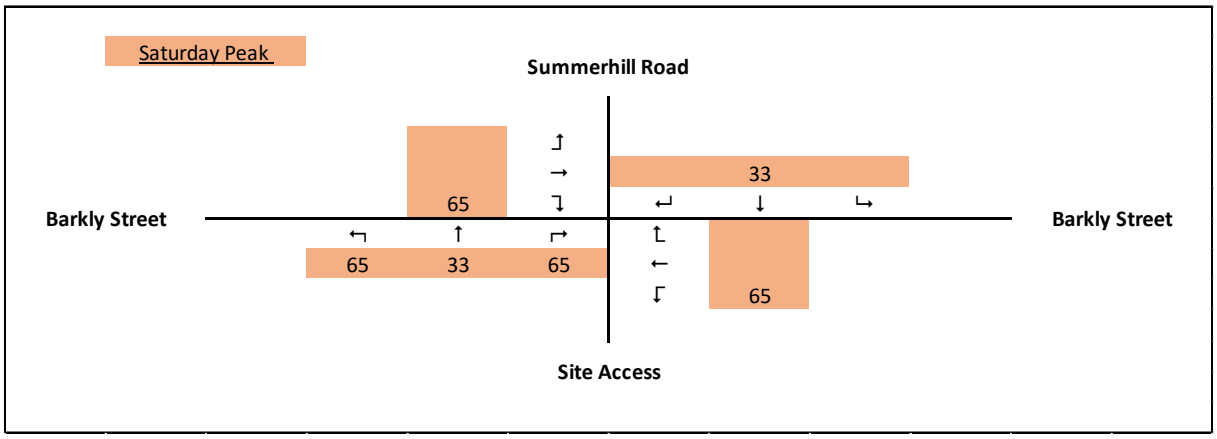
The below assessment therefore assumes that 28% of the site generated traffic movements will be from existing external traffic travelling past the site on Barkly Street and Summerhill Road.

8.5. Site Generated Traffic Volumes

Applying the aforementioned traffic distributions produces the following estimated turning movement diagrams for the subject intersection of Barkly Street / Summerhill Road / Site Access, presented in Figure 8.1

Figure 8.1: Site Generated Traffic Volumes



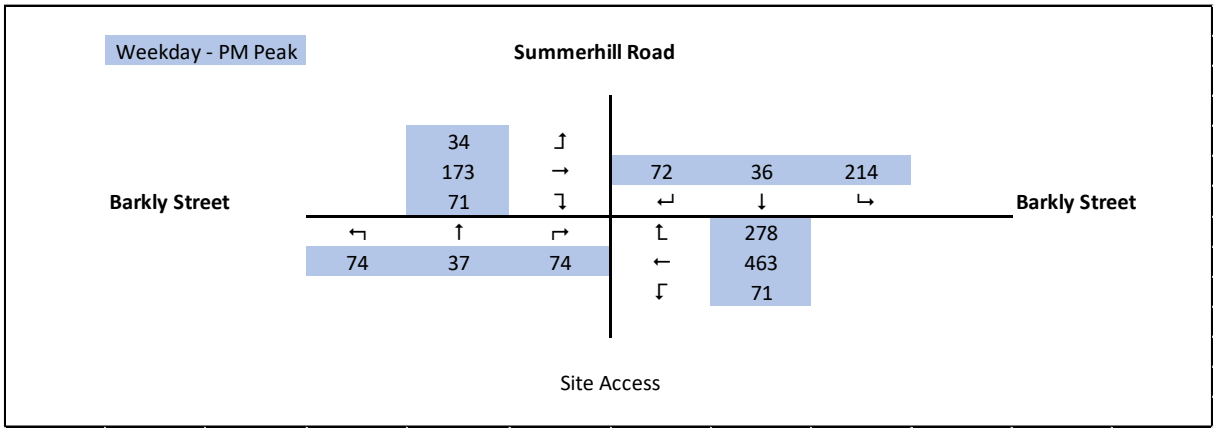


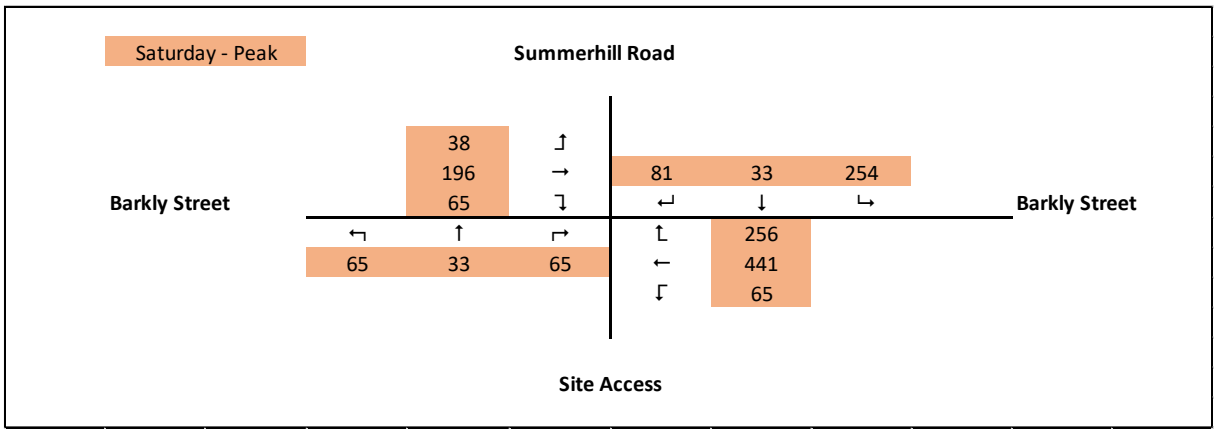
8.6. Post Development Traffic Volumes

By combining the existing volumes with the anticipated site generated volumes presented above, we get the anticipated post development traffic volumes through the subject intersection.

These are presented in Figure 8.2.

Figure 8.2: Post Development Traffic Volumes





A SIDRA analysis has been conducted to determine the post development operation of the intersection. The post development results are summarised below in Table 8.9 and Table 8.10, alongside the existing intersection results for the corresponding peak hour period so that a direct comparison can be made, with a full set of results presented in Appendix F of this report.

Table 8.9: Post Development Intersection Operation - Weekday PM Peak Hour

Approach	Existing Operation			Post Development Operation		
	D.O.S.	95%ile Queue (m)	Average Delay (s)	D.O.S.	95%ile Queue (m)	Average Delay (s)
Site Access (South)	-	-	-	0.697	38.0	42.9
Barkly Street (East)	0.405	65.4	12.3	0.720	143.9	26.6
Summerhill Road (North)	0.367	33.7	23.7	0.678	36.7	27.9
Barkly Street (West)	0.406	58.2	28.2	0.706	65.0	48.2

Table 8.10: Post Development Intersection Operation - Saturday Midday Peak Hour

Approach	Existing Operation			Post Development Operation		
	D.O.S.	D.O.S.	D.O.S.	D.O.S.	95%ile Queue (m)	Average Delay (s)
Site Access (South)	-	-	-	0.615	32.8	41.5
Barkly Street (East)	0.408	62.7	12.8	0.722	139.2	27.9
Summerhill Road (North)	0.413	44.4	25.0	0.717	44.9	28.4
Barkly Street (West)	0.413	63.6	26.0	0.701	72.4	46.3

In summary, the SIDRA results of the post development operation of the intersection indicate the following:

- Under post development conditions, all four intersection approaches are expected to operate under the 'very good' or 'good' categories, during both peak hour periods. Whilst this is a reduction from the existing operation of the intersection, the intersection will still be operating below its theoretical capacity.
- There is a reasonable increase to the 95%ile queue along the eastern Barkly Street approach during both peak hour periods, which is a result of the through lane now also allowing left turn movements into the subject site. This increase in queue length is not considered to be problematic for the following reasons:
  - The 95%ile queue for vehicles turning right into Summerhill Road can be accommodated within the existing right turn lane.
  - There are only modest increases to the average delay on this approach, indicating that the increased queue length is not forcing vehicles to have to wait at the intersection for an additional cycle.
- The 95%ile queue for vehicles turning right into the site from Barkly Street can be accommodated within the proposed 40-metre-long right turn lane on the western approach during both peak hour periods.
- Whilst the average delay to vehicles on all four approaches is increased under post development conditions, the longest delay is 46.3 seconds to vehicles on the Barkly Street western approach during the Saturday peak hour. This suggests that vehicles on all approaches are able to clear the intersection in one cycle during both peak hour periods.

On the basis of the above analysis, it is considered that the Barkly Street / Summerhill Road intersection has the ability to accommodate the increase in traffic generated by the proposed development in a safe and satisfactory manner without creating detrimental traffic safety or operational impacts.

9. Conclusion

9.1. Conclusion

It is proposed to redevelop the land located at 495-507 Barkly Street in Footscray for the purpose of a mixed-use development, known as West Footscray Village. The development will comprise a supermarket, bottle shop and specialty retail tenancies on ground level, restricted recreation facility, office, medical centre and childcare centre on Level 01.

A total of 278 car parking spaces (including six DDA spaces) and 10 motorcycle spaces are proposed within a two-level basement car park. Vehicle access is proposed via a new vehicle crossover in the northeast corner of the site. The site access will form the southern leg of the Barkly Street / Summerhill Road signalised intersection. A total of 23 bicycle parking spaces are proposed on-site.

Based on the above assessment, it is considered that:

- The proposed development generates a statutory requirement to provide 258 car parking spaces on-site, for those uses where a parking rate is nominated in the Planning Scheme.
- Based on an empirical assessment, the restricted recreation facility (which doesn't generate a statutory car parking requirement) is expected to generate a peak car parking demand of 11 spaces.
- The proposed provision of 278 on-site car parking spaces is either in accordance with or exceeds the parking requirement for each of the proposed uses and is therefore considered acceptable.
- The development generates a statutory requirement to provide a total of 21 bicycle parking spaces, including 9 spaces for employees and 12 spaces for visitors. The development also generates a requirement to provide 2 showers / change rooms for employees.
- The proposed provision of 23 bicycle parking spaces, including 9 bicycle parking spaces, 18 lockers and 2 showers / change rooms for employees within a dedicated EOT facility on basement 01 and 14 spaces for visitors on ground level. This provision exceeds the minimum statutory requirements of the site and is considered acceptable.
- The proposed bicycle parking layout has been designed in accordance with the requirements of the Australian Standard AS2890.3:2015.
- Access to/from the site is proposed via a new southern leg to the Barkly Street / Summerhill Road intersection. A concept layout plan (CLP) has been prepared which provides details of the proposed intersection layout.
- The proposed car parking layout has been designed in accordance with Design Standard 1, 2 and 3 of Clause 52.06 of the Maribyrnong Planning Scheme and/or the relevant sections of the Australian Standards.
- Based on a swept path assessment, it is concluded that a 12.5 metre long HRV is able to access the site via the proposed Barkly Street / Summerhill Road intersection layout, access the loading dock via the turntable and then depart the site in a forward direction.
- The proposal is expected to generate approximately 364 vehicle movements during the PM peak hour and 326 vehicle movements during the Saturday peak hour, which will access the site via the upgraded Barkly Street / Summerhill Road intersection.
- On the basis of the SIDRA analysis within this report, it is considered that the surrounding road network has the ability to accommodate the increase in traffic generated by the proposed development in a safe and satisfactory manner without creating detrimental traffic safety or operational impacts.

Overall, based on the assessment undertaken, the proposed mixed-use development is considered to be acceptable from a transport engineering perspective and is not expected to create adverse traffic or parking impacts in the area.

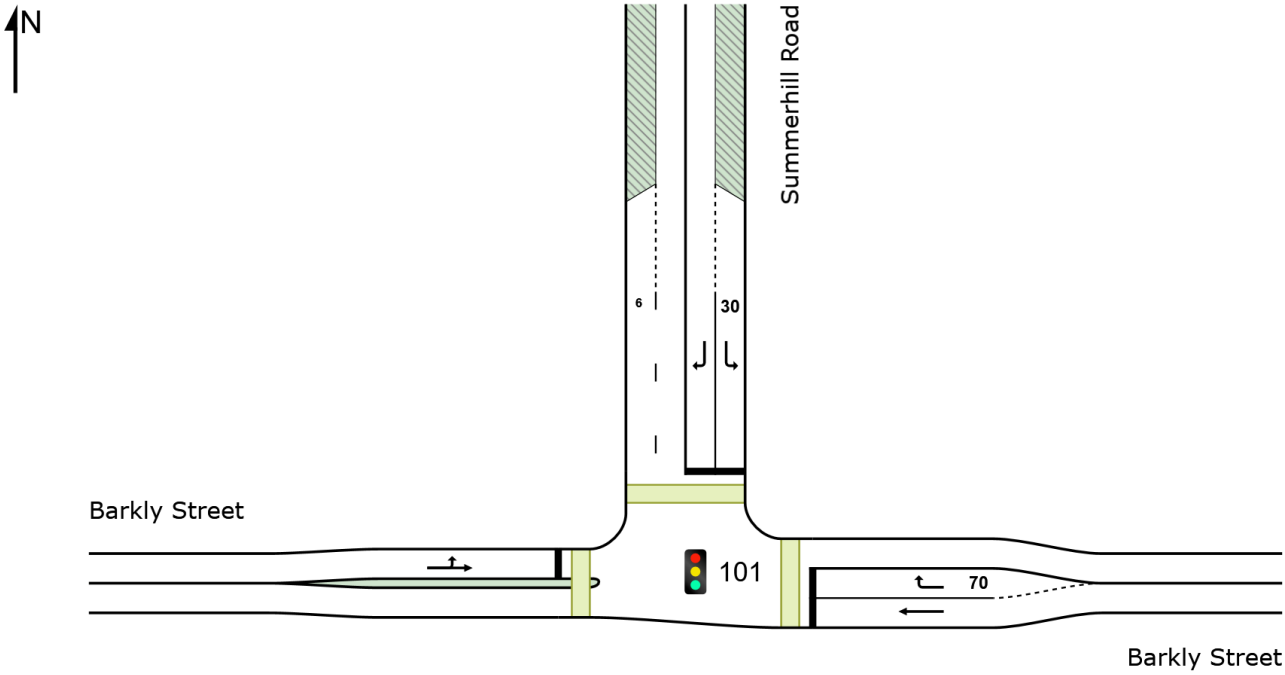
Appendix A Existing Intersection Operating Conditions

SITE LAYOUT

Site: 101 [Barkly St/Summerhill Rd-Ex-PM (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Existing Conditions
AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Barkly St/Summerhill Rd-Ex-PM (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Existing Conditions
AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Barkly Street														
5	T1	480	0.0	505	0.0	0.343	3.8	LOS A	7.2	50.4	0.36	0.32	0.36	56.4
6	R2	278	0.0	293	0.0	*0.405	27.0	LOS C	9.3	65.4	0.77	0.79	0.77	40.6
Approach		758	0.0	798	0.0	0.405	12.3	LOS B	9.3	65.4	0.51	0.49	0.51	49.4
North: Summerhill Road														
7	L2	214	0.0	225	0.0	0.214	15.8	LOS B	4.8	33.7	0.52	0.72	0.52	46.6
9	R2	72	0.0	76	0.0	*0.367	47.3	LOS D	3.2	22.6	0.97	0.76	0.97	33.1
Approach		286	0.0	301	0.0	0.367	23.7	LOS C	4.8	33.7	0.64	0.73	0.64	42.3
West: Barkly Street														
10	L2	34	0.0	36	0.0	0.406	33.3	LOS C	8.3	58.2	0.84	0.72	0.84	40.3
11	T1	190	0.0	200	0.0	*0.406	27.2	LOS C	8.3	58.2	0.84	0.72	0.84	41.1
Approach		224	0.0	236	0.0	0.406	28.2	LOS C	8.3	58.2	0.84	0.72	0.84	41.0
All Vehicles		1268	0.0	1335	0.0	0.406	17.7	LOS B	9.3	65.4	0.60	0.59	0.60	46.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Barkly Street												
P2	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	202.3	211.9	1.05
North: Summerhill Road												
P3	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	204.8	215.2	1.05
West: Barkly Street												
P4	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	200.5	209.6	1.05
All Pedestrians		150	158	39.3	LOS D	0.1	0.1	0.94	0.94	202.5	212.2	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [Barkly St/Summerhill Rd-Ex-PM (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Existing Conditions
AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

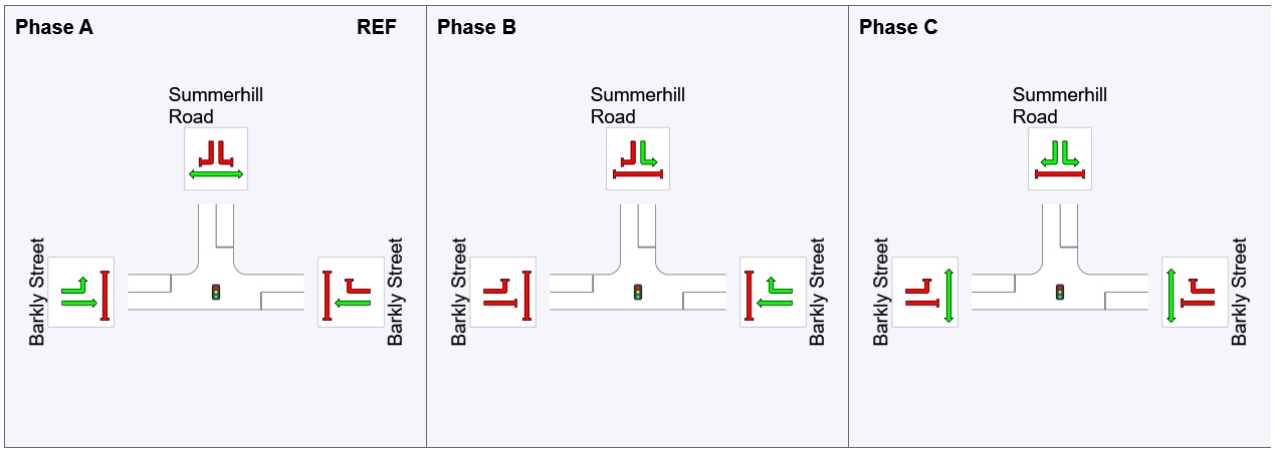
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

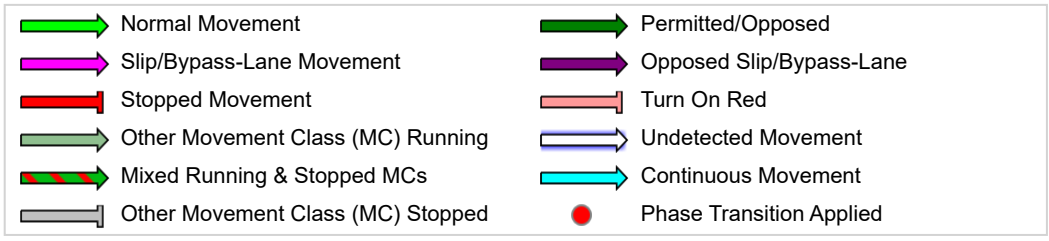
Phase	A	B	C
Phase Change Time (sec)	0	33	74
Green Time (sec)	27	35	10
Phase Time (sec)	33	41	16
Phase Split	37%	46%	18%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 101 [Barkly St/Summerhill Rd-Ex-SAT (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Existing Conditions
AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Barkly Street														
5	T1	460	0.0	484	0.0	0.329	3.8	LOS A	6.8	47.5	0.35	0.31	0.35	56.5
6	R2	256	0.0	269	0.0	*0.408	29.1	LOS C	9.0	62.7	0.80	0.80	0.80	39.7
Approach		716	0.0	754	0.0	0.408	12.8	LOS B	9.0	62.7	0.51	0.48	0.51	49.1
North: Summerhill Road														
7	L2	254	0.0	267	0.0	0.270	17.7	LOS B	6.3	44.4	0.58	0.74	0.58	45.5
9	R2	81	0.0	85	0.0	*0.413	47.6	LOS D	3.7	25.6	0.97	0.77	0.97	33.0
Approach		335	0.0	353	0.0	0.413	25.0	LOS C	6.3	44.4	0.68	0.74	0.68	41.7
West: Barkly Street														
10	L2	38	0.0	40	0.0	0.413	31.1	LOS C	9.1	63.6	0.82	0.71	0.82	41.3
11	T1	215	0.0	226	0.0	*0.413	25.1	LOS C	9.1	63.6	0.82	0.71	0.82	42.1
Approach		253	0.0	266	0.0	0.413	26.0	LOS C	9.1	63.6	0.82	0.71	0.82	42.0
All Vehicles		1304	0.0	1373	0.0	0.413	18.5	LOS B	9.1	63.6	0.61	0.60	0.61	45.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Barkly Street												
P2	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	202.3	211.9	1.05
North: Summerhill Road												
P3	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	204.8	215.2	1.05
West: Barkly Street												
P4	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	200.5	209.6	1.05
All Pedestrians		150	158	39.3	LOS D	0.1	0.1	0.94	0.94	202.5	212.2	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [Barkly St/Summerhill Rd-Ex-SAT (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Existing Conditions
AM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

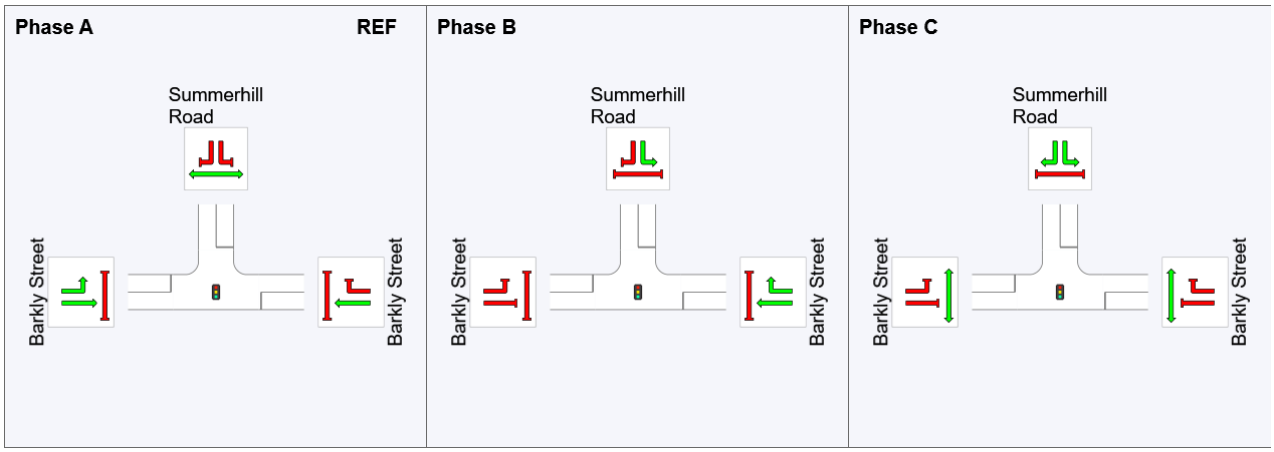
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

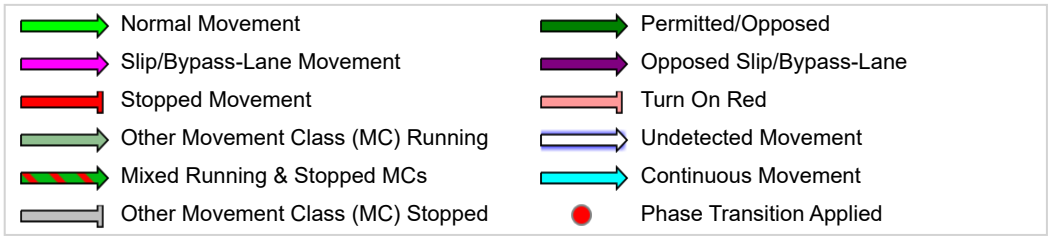
Phase	A	B	C
Phase Change Time (sec)	0	36	74
Green Time (sec)	30	32	10
Phase Time (sec)	36	38	16
Phase Split	40%	42%	18%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

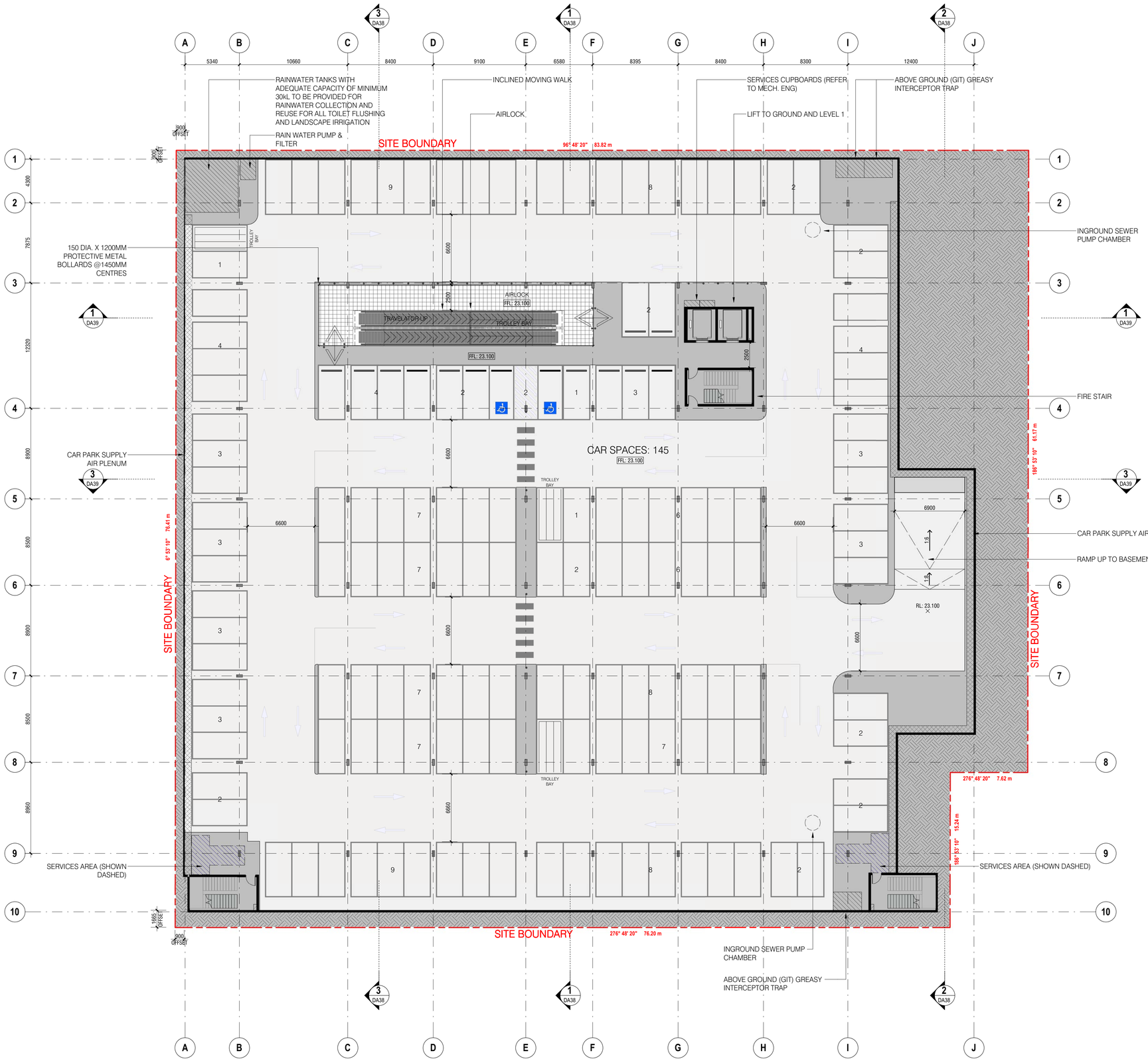
Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Appendix B Site Plan



DEVELOPMENT SUMMARY

superlot area	6290.0m² approx.		
	(+) new	cars required	
BASEMENT FLOOR			
woolworths supermarket DTB	107.0 m²	6 cars	*[5.0/100m²]*
GROUND FLOOR			
supermarket	3579.0 m²	179 cars	*[5.0/100m²]*
retail premises	577.0 m²	29 cars	*[5.0/100m²]*
bottle shop	138.5 m²	7 cars	*[5.0/100m²]*
total ground floor area	4401.5 m²	221 cars req	
TOTAL RETAIL CARS PROV.	221 cars	prop. ratio	*[5.0/100m²]*
FIRST FLOOR			
restricted recreation facility (gym)	384.0 m²	12 cars	*[3.0/100m²]*
office	368.0 m²	12 cars	*[3.0/100m²]*
childcare facility (110 child)	1485.0 m²	24 cars	*.22/child*
medical centre	425.0 m²	13 cars	*[3.0/100m²]*
total first floor area	2662.0 m²	61 cars req	
TOTAL NON-RETAIL CARS PROV.	61 cars		
TOTAL AREA	7063.5 m²	282 cars req	
basement 1 carpark	133 cars		
basement 2 carpark	145 cars		
TOTAL CARS	278 cars	prop. ratio	*[3.9/100m²]*
TOTAL MOTORCYCLES	10		

NOTE: ALL EXISTING AREAS ARE APPROXIMATE ONLY. RE-ESTABLISHMENT SURVEY TO BE UNDERTAKEN TO CONFIRM ALL AREAS

ACCESSIBLE ENERY AND WATER METERING AND MONITORING SYSTEMS FOR ALL COMMON USES, MAJOR USES AND MAJOR SOURCES

no.	date	ISSUE / revision	by

WEST FOOTSCRAY VILLAGE - MIXED USE DEVELOPMENT

495-507 BARKLY ST, FOOTSCRAY, VIC, 3011

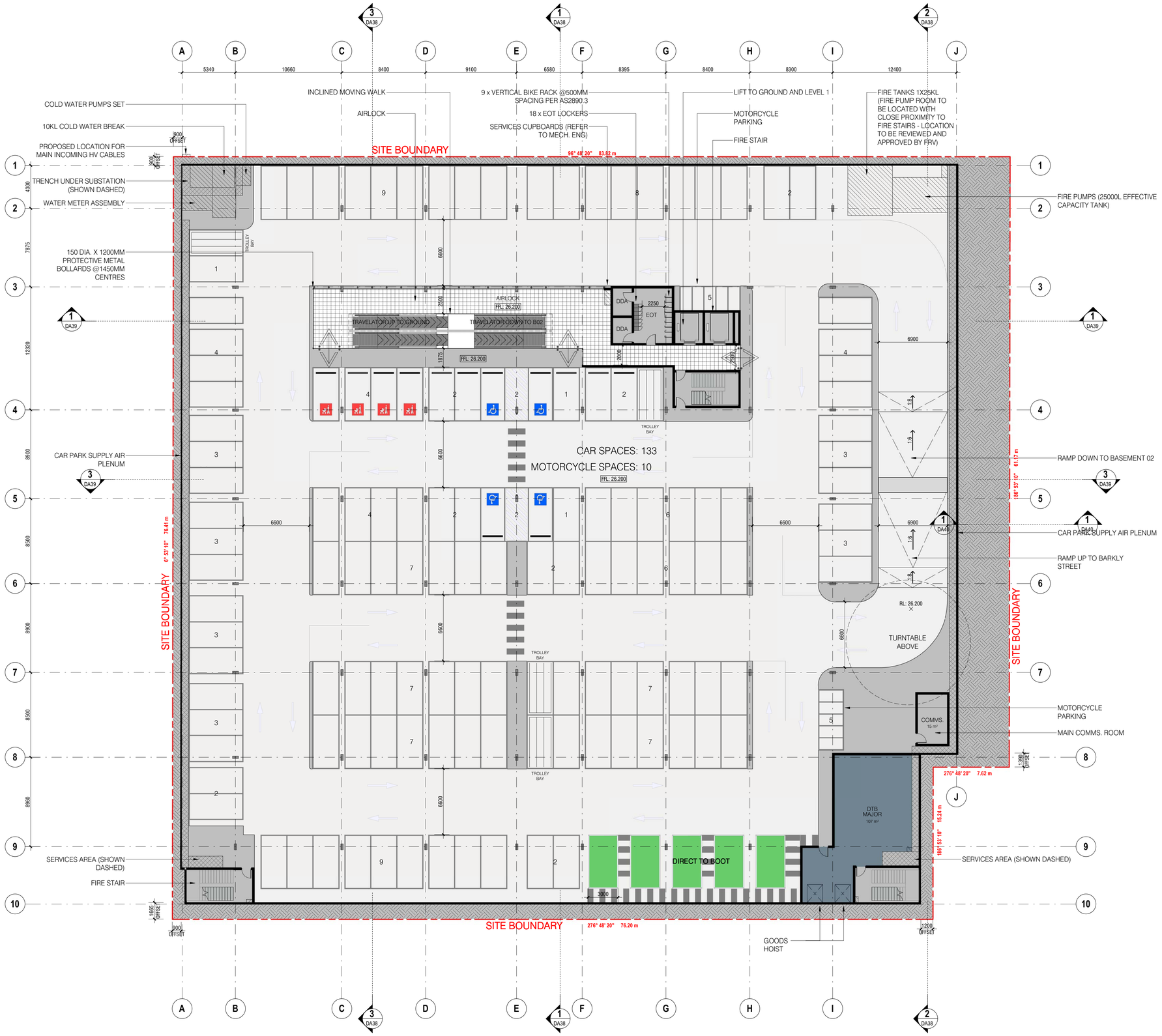
WOOLWORTHS GROUP

inspiring ideas to enhance human experience

PROPOSED BASEMENT 02 PLAN

TOWN PLANNING

project	drawing no.	issue
2021-363	DA32	
scale @ A1	designed	checked
1 : 200	FMO	JWR



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ACCESSIBLE ENERY AND WATER METERING AND MONITORING SYSTEMS FOR ALL COMMON USES, MAJOR USES AND MAJOR SOURCES

no. date ISSUE / revision by

WEST FOOTSCRAY VILLAGE - MIXED USE DEVELOPMENT

495-507 BARKLY ST, FOOTSCRAY, VIC, 3011

WOOLWORTHS GROUP

inspiring ideas to enhance human experience

PROPOSED BASEMENT 01 PLAN

TOWN PLANNING

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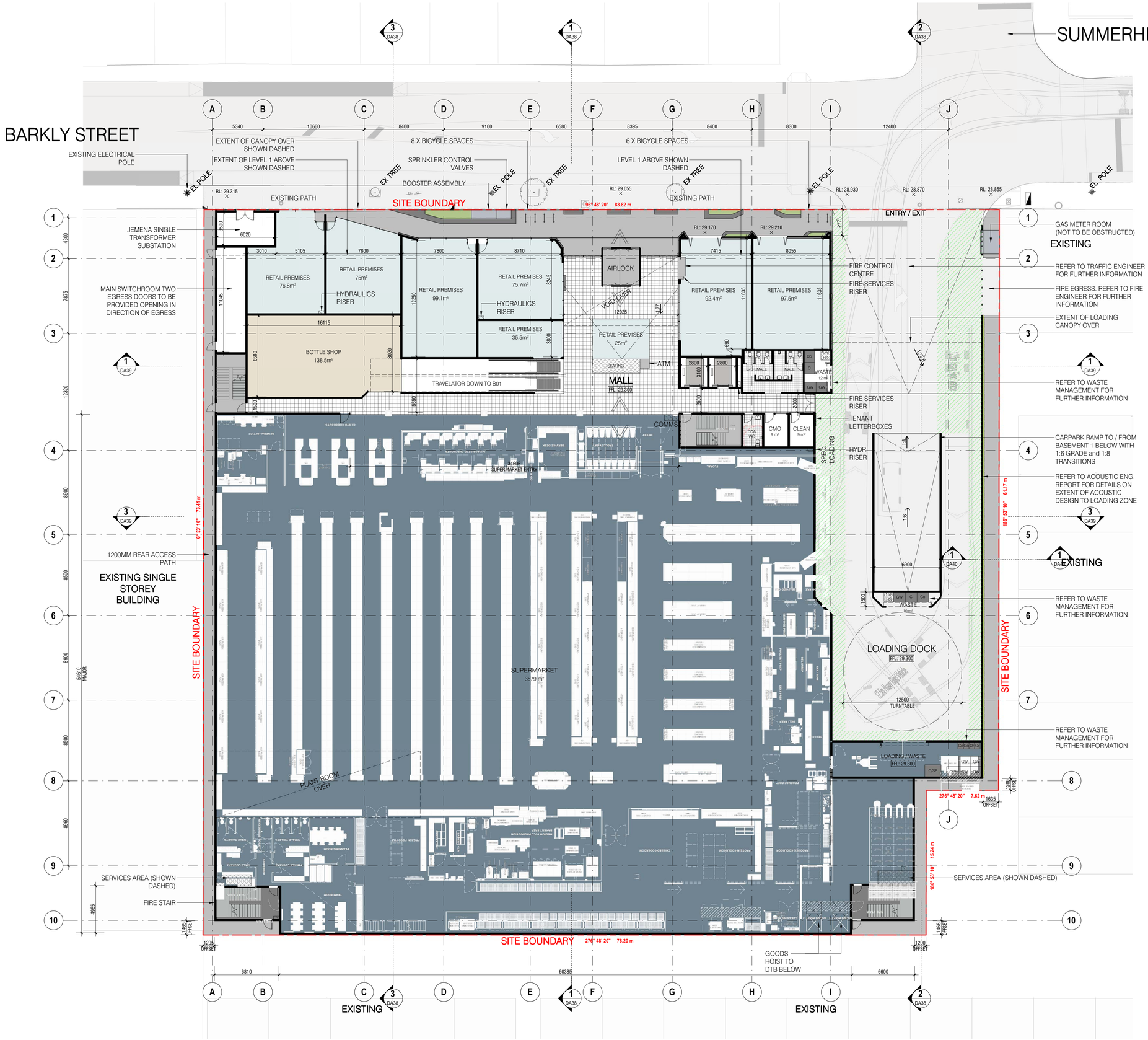
2021-363	DA33	
scale @ A1	designed	checked
1 : 200	FMO	JWR



DEVELOPMENT SUMMARY

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BASEMENT FLOOR			
woolworths supermarket DTB	107.0 m²	6 cars	*[5.0/100m²]*
GROUND FLOOR			
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ACCESSIBLE ENERY AND WATER METERING AND MONITORING SYSTEMS FOR ALL COMMON USES, MAJOR USES AND MAJOR SOURCES

OUTDOOR LIGHTING WILL COMPLY WITH AS/NZS 4282:2019. COMPLIANCE WILL BE ACHIEVED AS PER COLUMN 3 OF TABLE 2.1 OF AS/NZS 4282:2019

ALL LIGHTS WILL BE DESIGNED TO BE FLICKER FREE WITH LIGHTING QUALITY TO COMPLY WITH AS/NZS 1680

VENTILATION SYSTEMS DESIGN TO MEET ASHRAE62.1-2003. OUTSIDE AIR RATES TO BE IMPROVED BY AT LEAST 50% OVER MINIMUM REQUIREMENTS AS DETAILED IN AS1668.2

WATER FIXTURES TO WELS RATING :
- -KITCHEN TAPS: 5 STAR WELS RATING
- - BATHROOM TAPS: 5 STAR WELS RATING
- - DISHWASHER: 5 STAR WELS RATING
- - WC 4 STAR WELS RATING
- - SHOWERS 3 STAR WELS RATING (≤ 7.5 L/MIN)
- -WASHING MACHINE 4 STAR WELS RATING

50M² RAINGARDEN ON LEVEL 1 FOR BIORETENTION / BIOLFILTRATION

no.	date	ISSUE / revision	by

WEST FOOTSCRAY VILLAGE - MIXED USE DEVELOPMENT

495-507 BARKLY ST, FOOTSCRAY, VIC, 3011

WOOLWORTHS GROUP

inspiring ideas to enhance human experience

PROPOSED GROUND FLOOR PLAN

TOWN PLANNING

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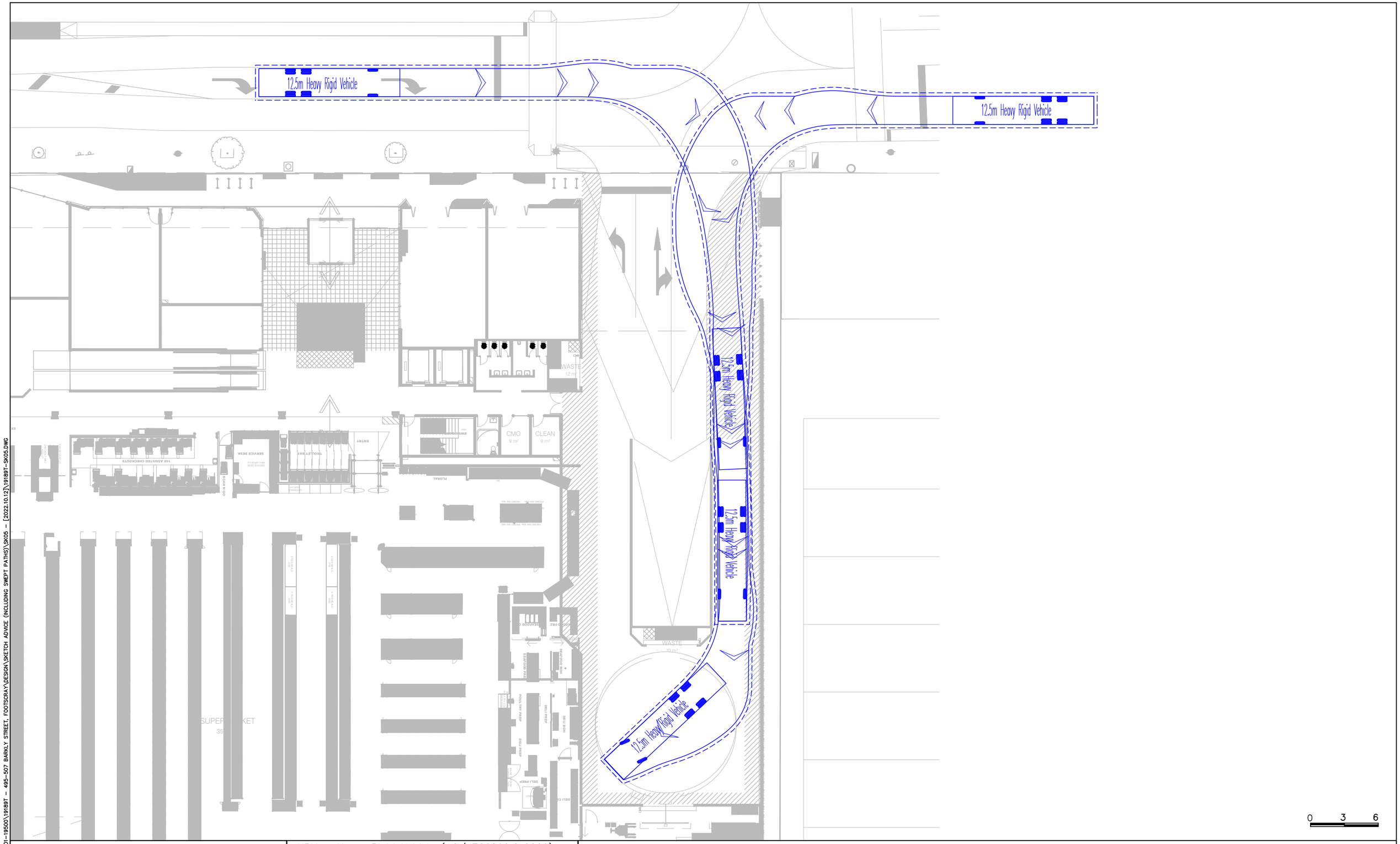
2021-363	DA34	
scale @ A1	designed	checked
1 : 200	FMO	JWR

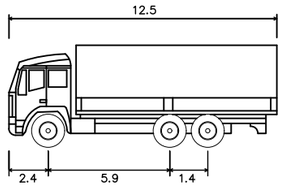
Appendix C Swept Path Assessment



ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

HRV – Heavy Rigid Vehicle (AS/NZS2890.2: 2002)



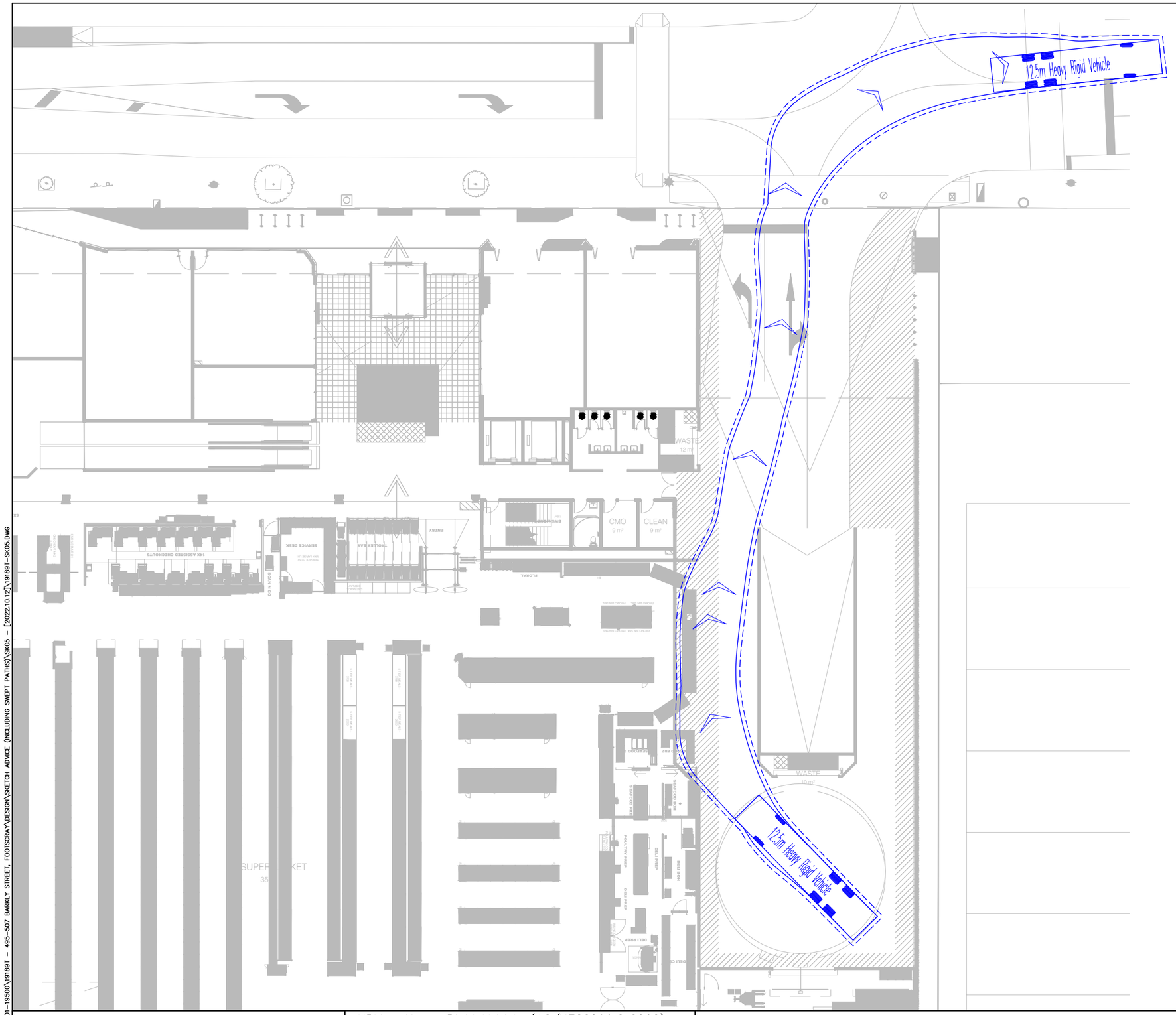
VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	12.500m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

Proposed Mixed-Use Development
495-507 Barkly Street, Footscray
Swept Path Assessment - Ground Level

NOTE:
1) Base Plan Supplied by i2C Architects, dated October 2022
2) Maximum Design Speed 5km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
19189T-SK05/JHB	01 of 10	1:300@A3	12/10/2022



ratio:
RATIO CONSULTANTS PTY LTD
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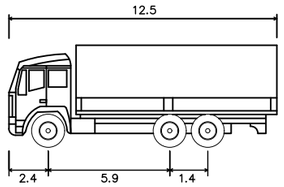
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

HRV – Heavy Rigid Vehicle (AS/NZS2890.2: 2002)



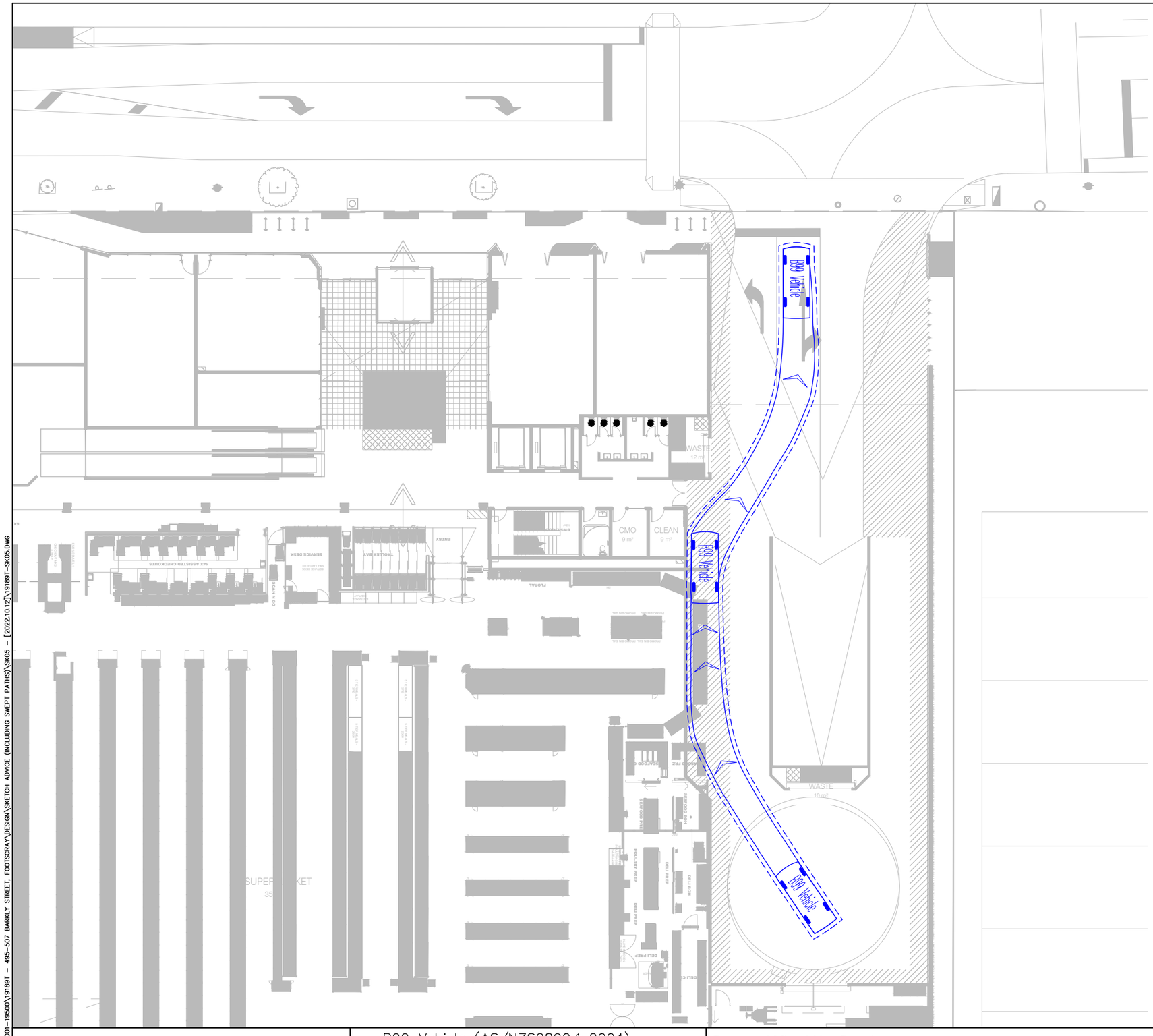
VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	12.500m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

Proposed Mixed-Use Development
495-507 Barkly Street, Footscray
Swept Path Assessment - Ground Level

NOTE:
1) Base Plan Supplied by i2C Architects, dated October 2022
2) Maximum Design Speed 5km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
19189T-SK05/JHB	02 of 10	1:300@A3	12/10/2022



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ratio:

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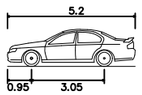
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

B99 Vehicle (AS/NZS2890.1:2004)



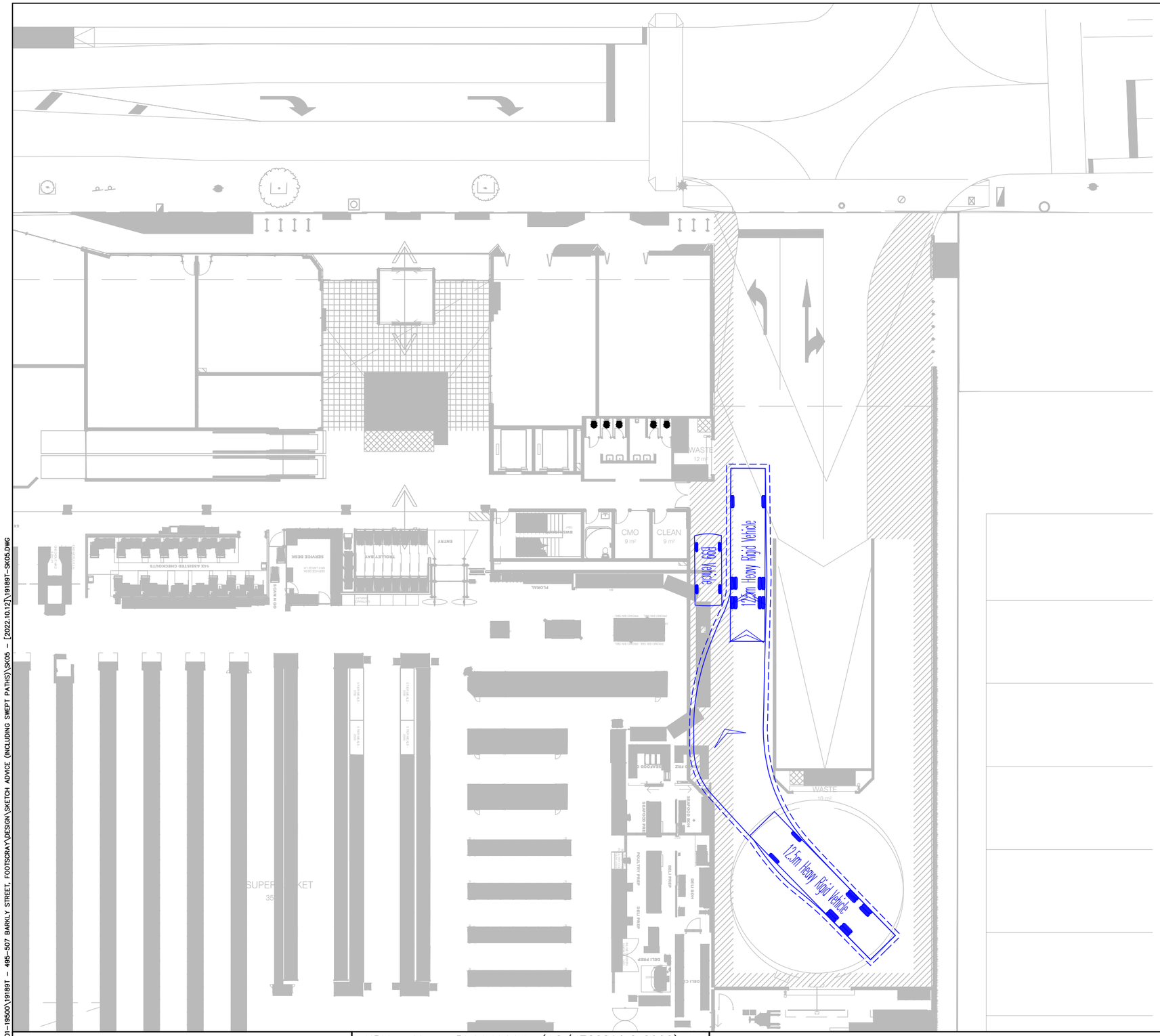
VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

Proposed Mixed-Use Development
495-507 Barkly Street, Footscray
Swept Path Assessment - Ground Level

NOTE:
1) Base Plan Supplied by i2C Architects, dated October 2022
2) Maximum Design Speed 5km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
19189T-SK05/JHB	03 of 10	1:300@A3	12/10/2022



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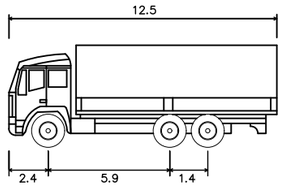
HRV – Heavy Rigid Vehicle (AS/NZS2890.2: 2002)



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	12.500m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
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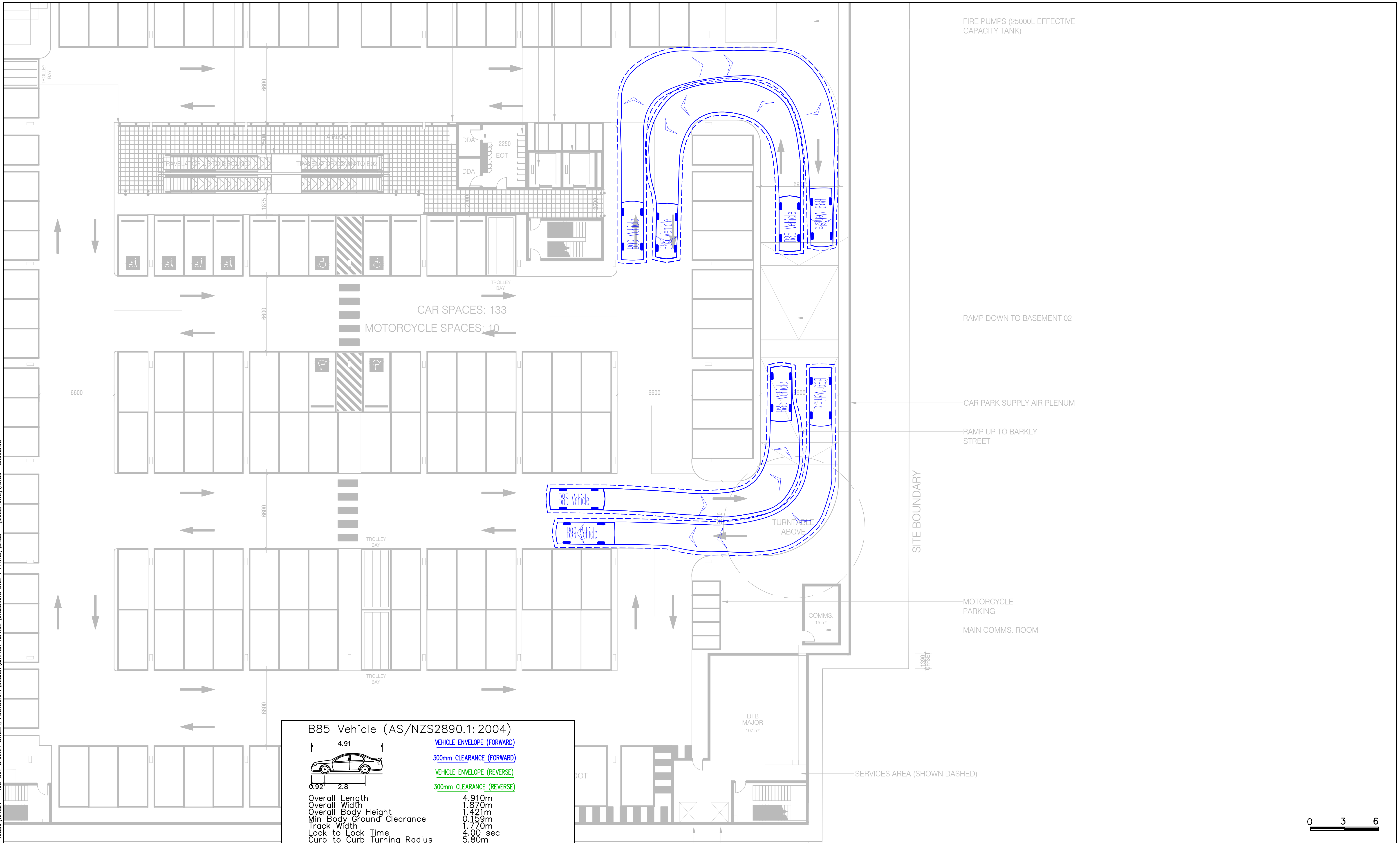
Proposed Mixed-Use Development
495-507 Barkly Street, Footscray
Swept Path Assessment - Ground Level

NOTE:
1) Base Plan Supplied by i2C Architects, dated October 2022
2) Maximum Design Speed 5km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
19189T-SK05/JHB	04 of 10	1:300@A3	12/10/2022



B85 Vehicle (AS/NZS2890.1:2004)

VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

4.91 / 0.92 / 2.8

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

B99 Vehicle (AS/NZS2890.1:2004)

VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

5.2 / 0.95 / 3.05

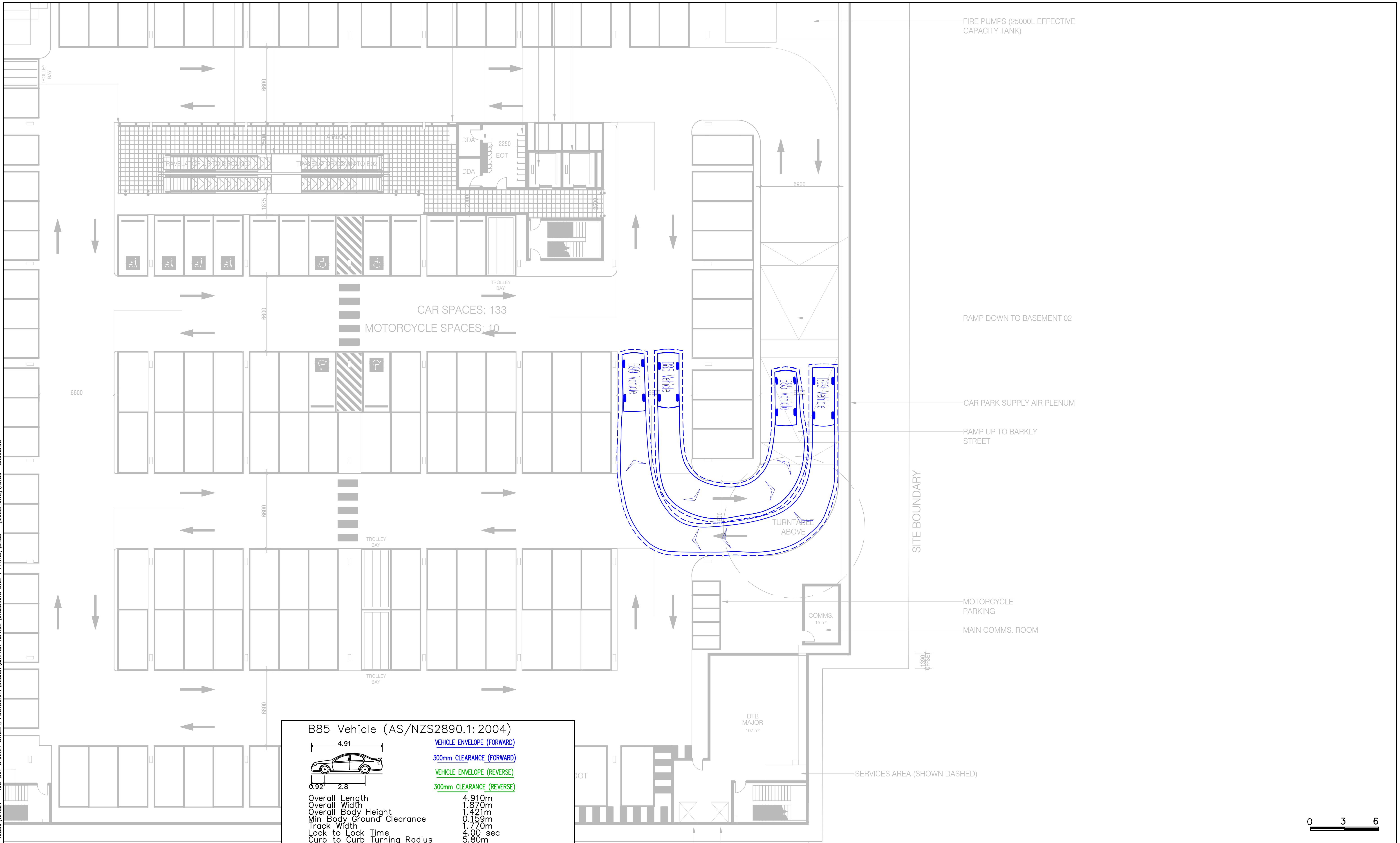
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Proposed Mixed-Use Development
495-507 Barkly Street, Footscray
Swept Path Assessment - Basement 01

NOTE:
1) Base Plan Supplied by i2C Architects, dated October 2022
2) Maximum Design Speed 5km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
19189T-SK05/JHB	05 of 10	1:300@A3	12/10/2022



B85 Vehicle (AS/NZS2890.1:2004)

4.91

0.92 2.8

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300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

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B99 Vehicle (AS/NZS2890.1:2004)

5.2

0.95 3.05

VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Proposed Mixed-Use Development
495-507 Barkly Street, Footscray
Swept Path Assessment - Basement 01

NOTE:
1) Base Plan Supplied by i2C Architects, dated October 2022
2) Maximum Design Speed 5km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
19189T-SK05/JHB	06 of 10	1:300@A3	12/10/2022

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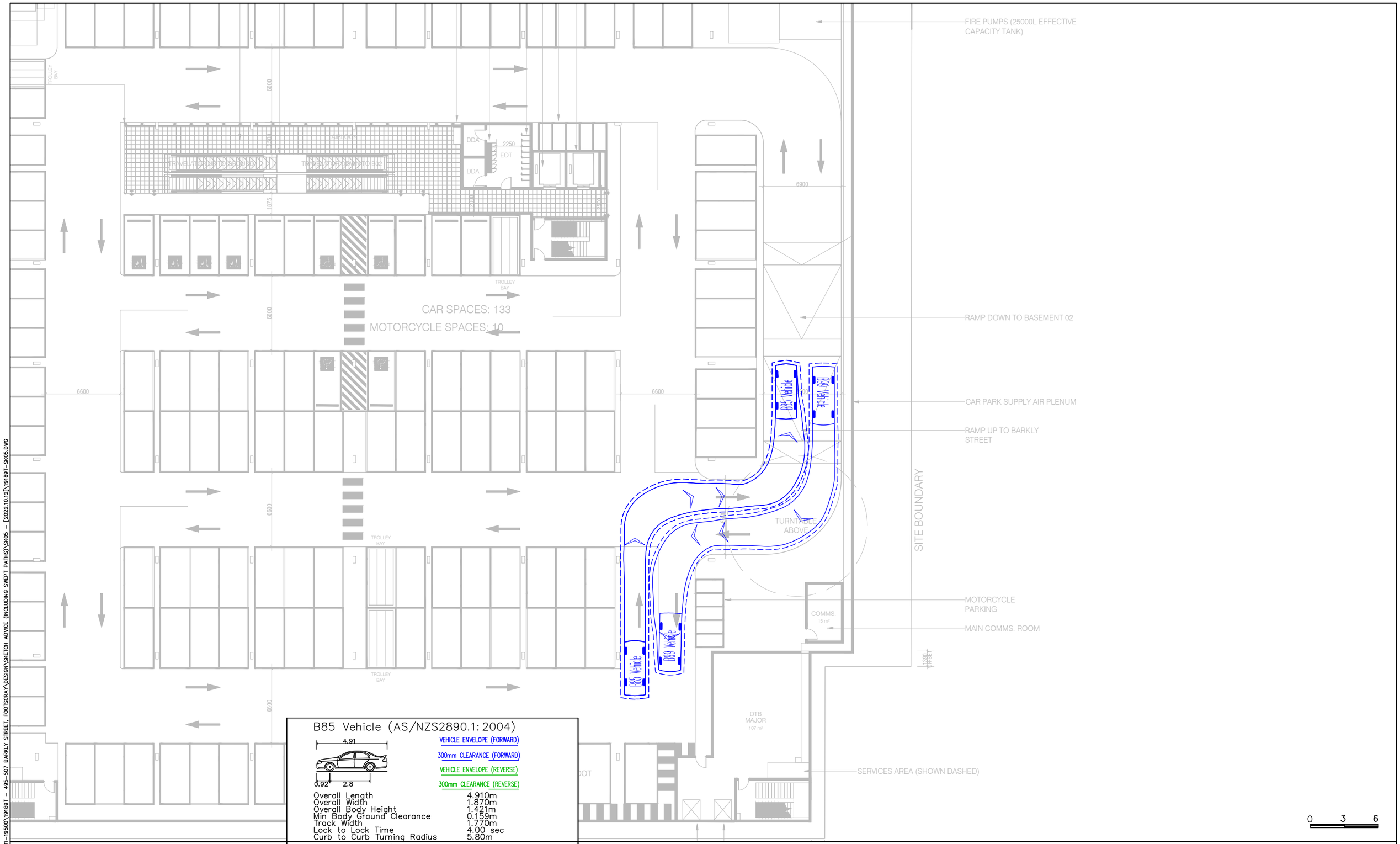

B85 Vehicle (AS/NZS2890.1: 2004)

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300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

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Track Width	1.770m
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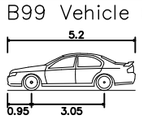
Curb to Curb Turning Radius	5.80m

B99 Vehicle (AS/NZS2890.1: 2004)



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300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

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Min Body Ground Clearance	0.312m
Track Width	1.840m
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Curb to Curb Turning Radius	6.30m

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
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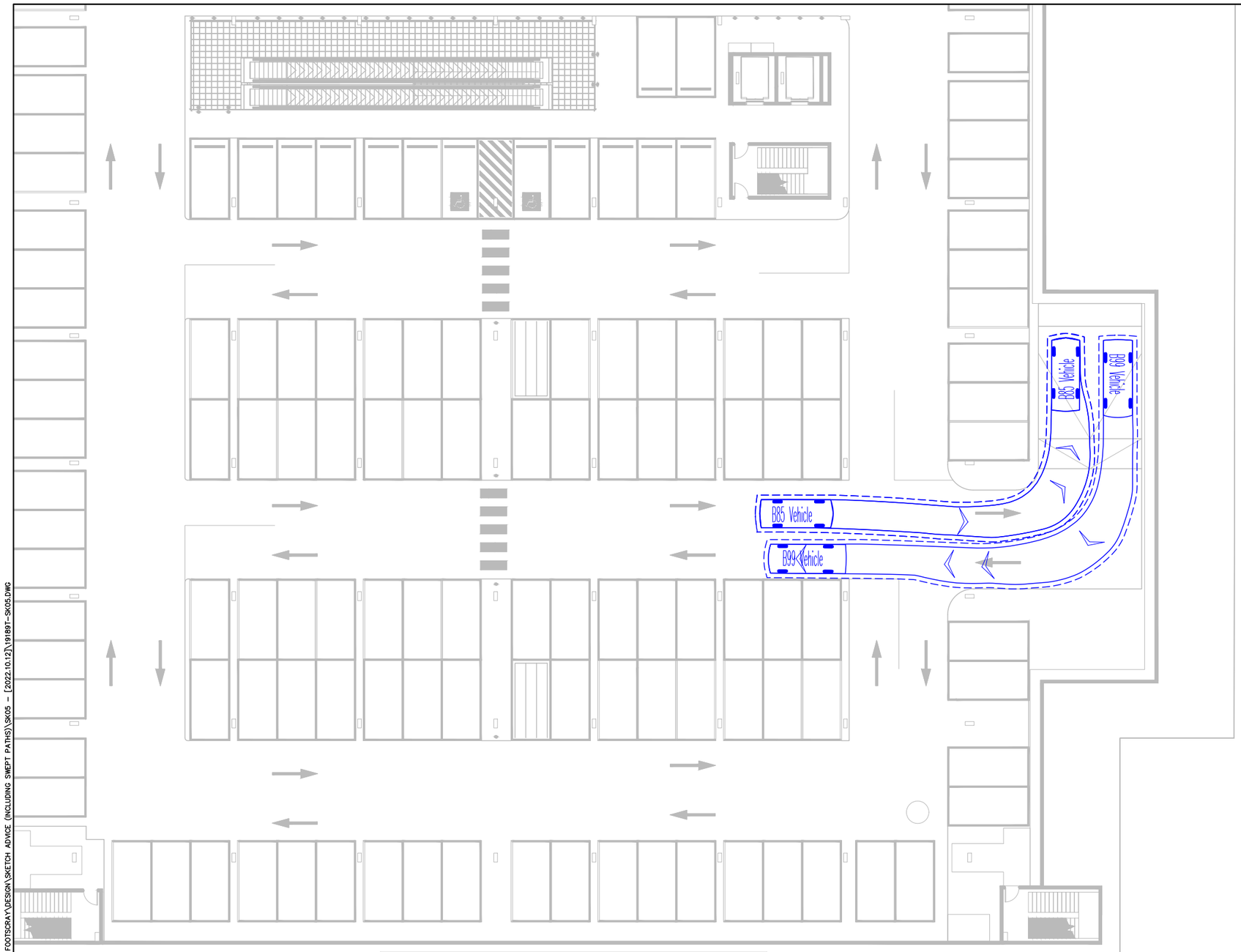
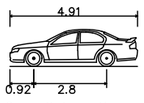
Proposed Mixed-Use Development
495-507 Barkly Street, Footscray
Swept Path Assessment - Basement 01

NOTE:
1) Base Plan Supplied by i2C Architects, dated October 2022
2) Maximum Design Speed 5km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
19189T-SK05/JHB	07 of 10	1:300@A3	12/10/2022



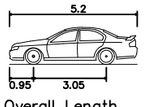
B85 Vehicle (AS/NZS2890.1:2004)



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

B99 Vehicle (AS/NZS2890.1:2004)



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

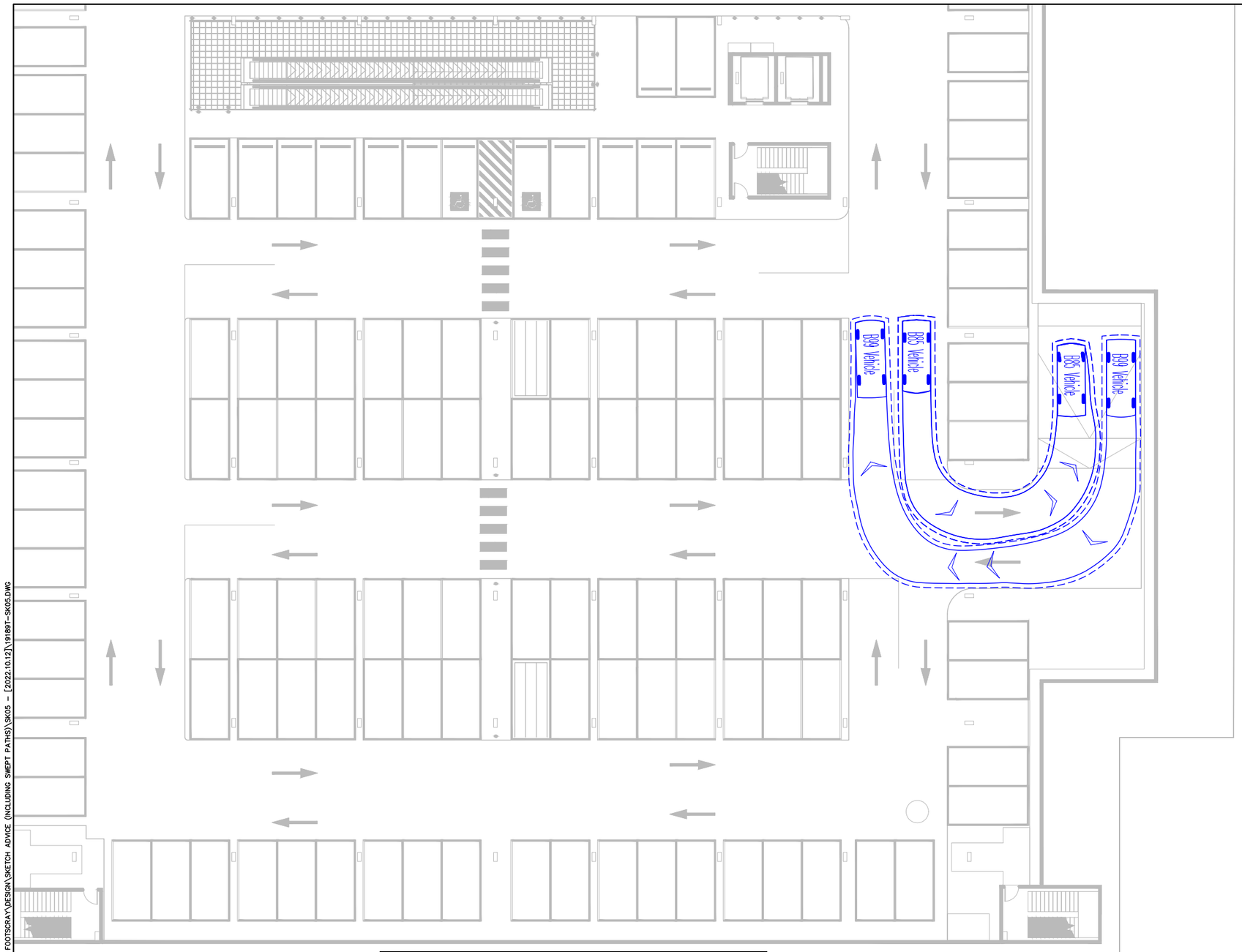
0 3 6

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Proposed Mixed-Use Development
495-507 Barkly Street, Footscray
Swept Path Assessment - Basement 02

NOTE:
1) Base Plan Supplied by i2C Architects, dated October 2022
2) Maximum Design Speed 5km/h

RATIO REFERENCE	SHEET No.	SCALE	DATE
19189T-SK05/JHB	08 of 10	1:300@A3	12/10/2022



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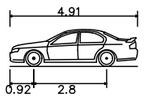

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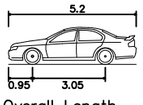

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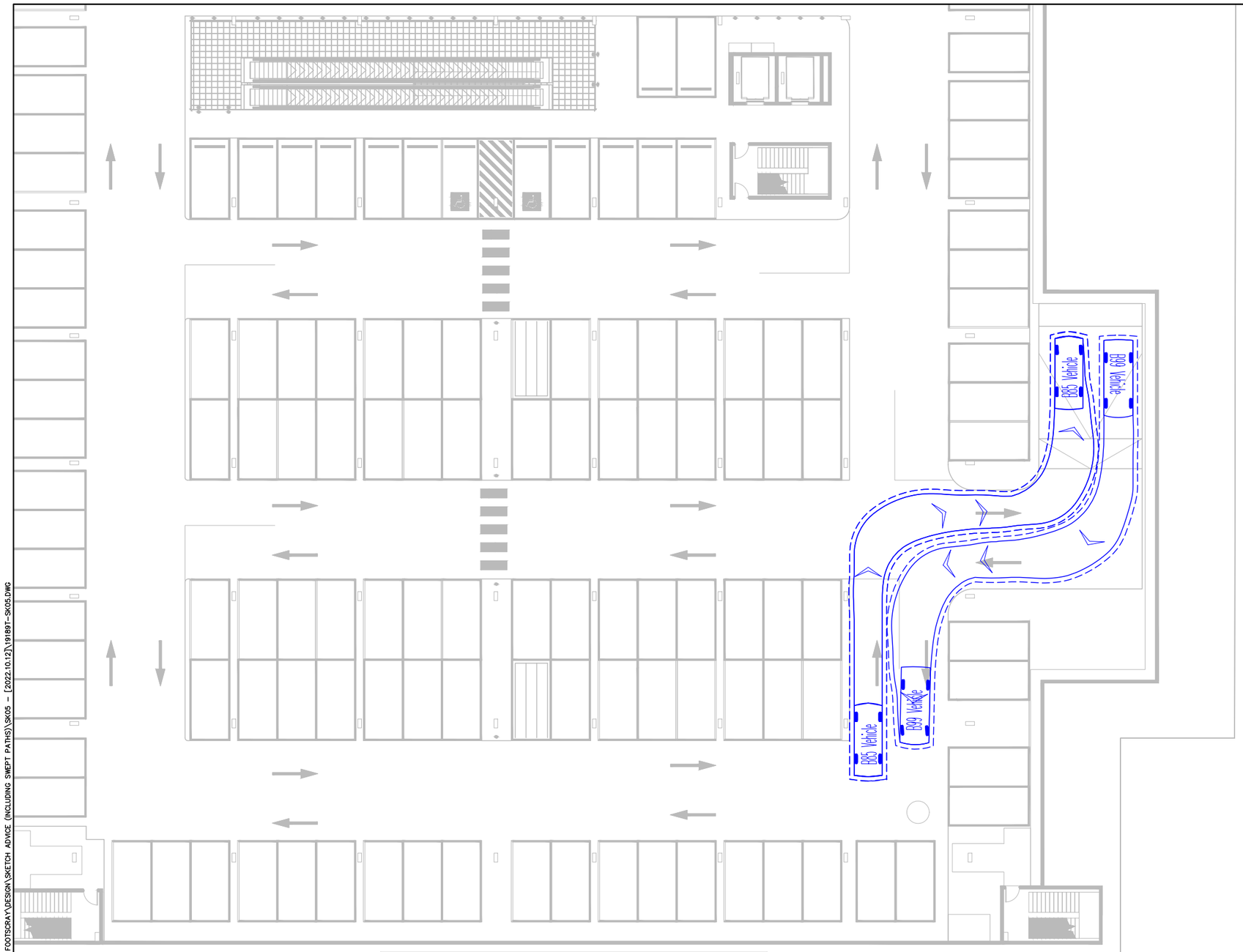

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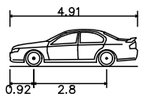

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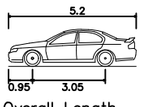

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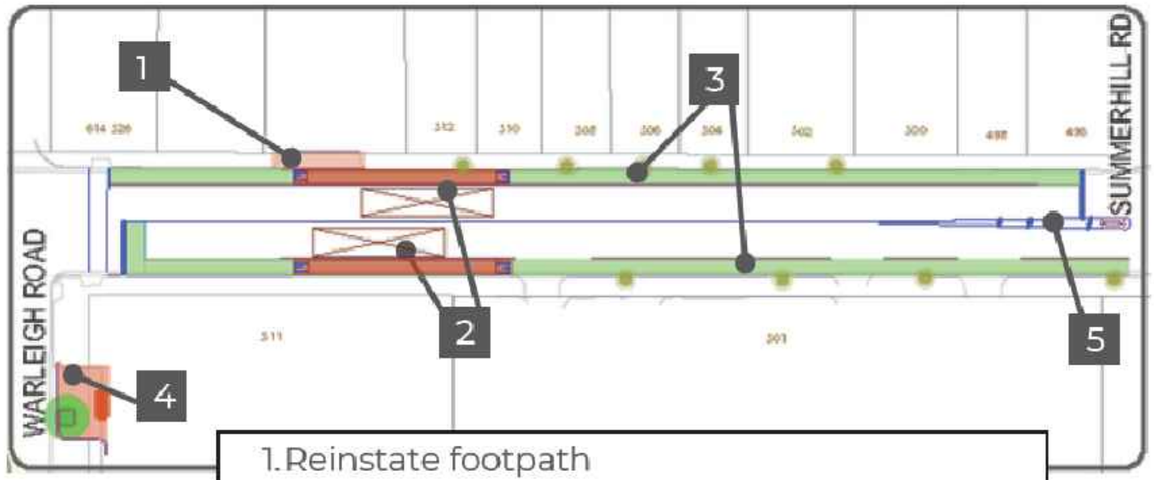
19189T-SK05/JHB	10 of 10	1:300@A3	12/10/2022

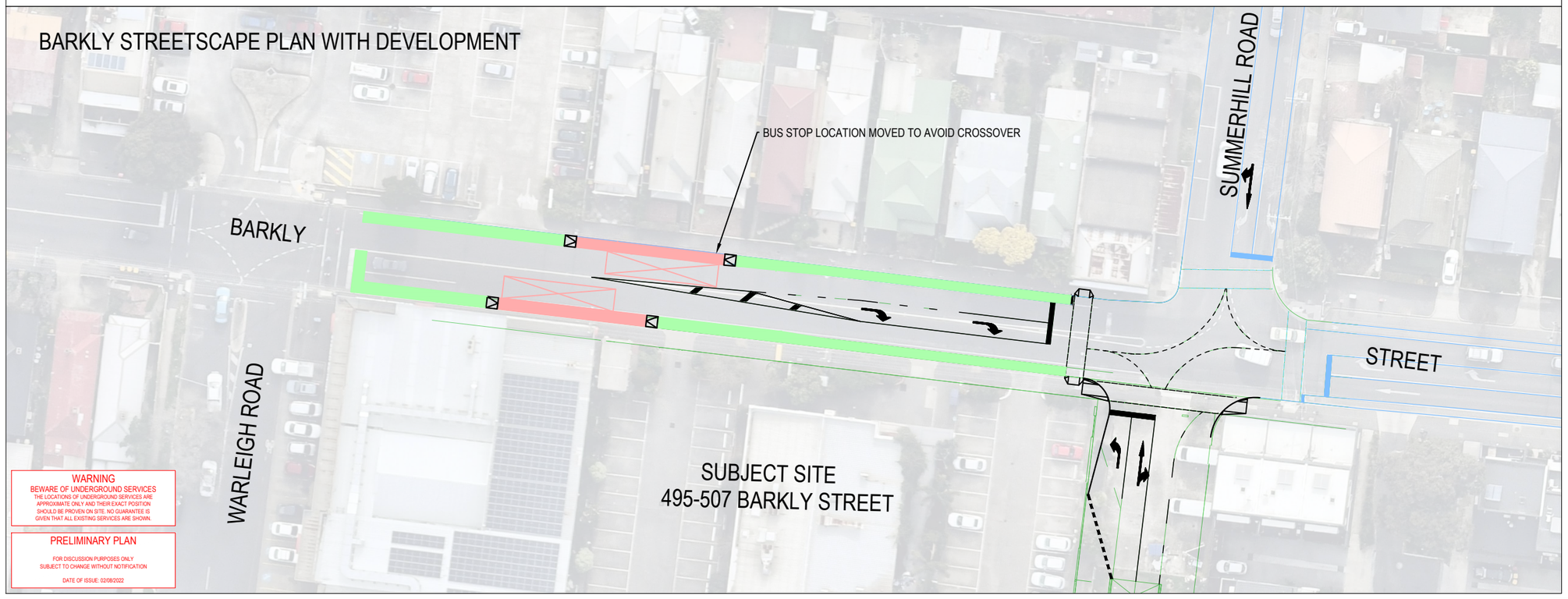
Appendix D Concept Layout Plans

COUNCIL BARKLY STREETSCAPE PLAN



1. Reinstate footpath
2. New in-lane bus stop and raised bike lane
3. Bike lane with protective barrier
4. Rain garden and seating to replace three car parking spaces
5. Refuge island

BARKLY STREETSCAPE PLAN WITH DEVELOPMENT



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- MINOR CONTOUR
- TITLE BOUNDARY
- ROAD RESERVE
- ELECTRICITY
- TELECOM
- WATER
- DRAIN
- SEWER
- GAS
- TOP OF BANK
- TOE OF BANK
- FUTURE DEVELOPMENT
- EXISTING DEVELOPMENT
- PROPOSED LINE MARKING
- PROPOSED KERB

N

MELWAY REF 41 J4

ISSUE	APP'D	DATE	COMMENTS
F	C.G.	2/08/2022	Added Council Design
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CHECKED	C. Greenland	11/11/21
AUTHORISED	C. Greenland	11/11/21
SCALE NA @ A3	0 - -	

ratio:
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CREMORNE, VICTORIA 3121
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495 - 507 Barkly Street, Footscray
City of Maribyrnong
Proposed Supermarket Development
Concept Layout

DATE	SHEET NO.	DRAWING NO.	ISSUE
11/11/2021	1 of 7	18297T-CLP-003	F

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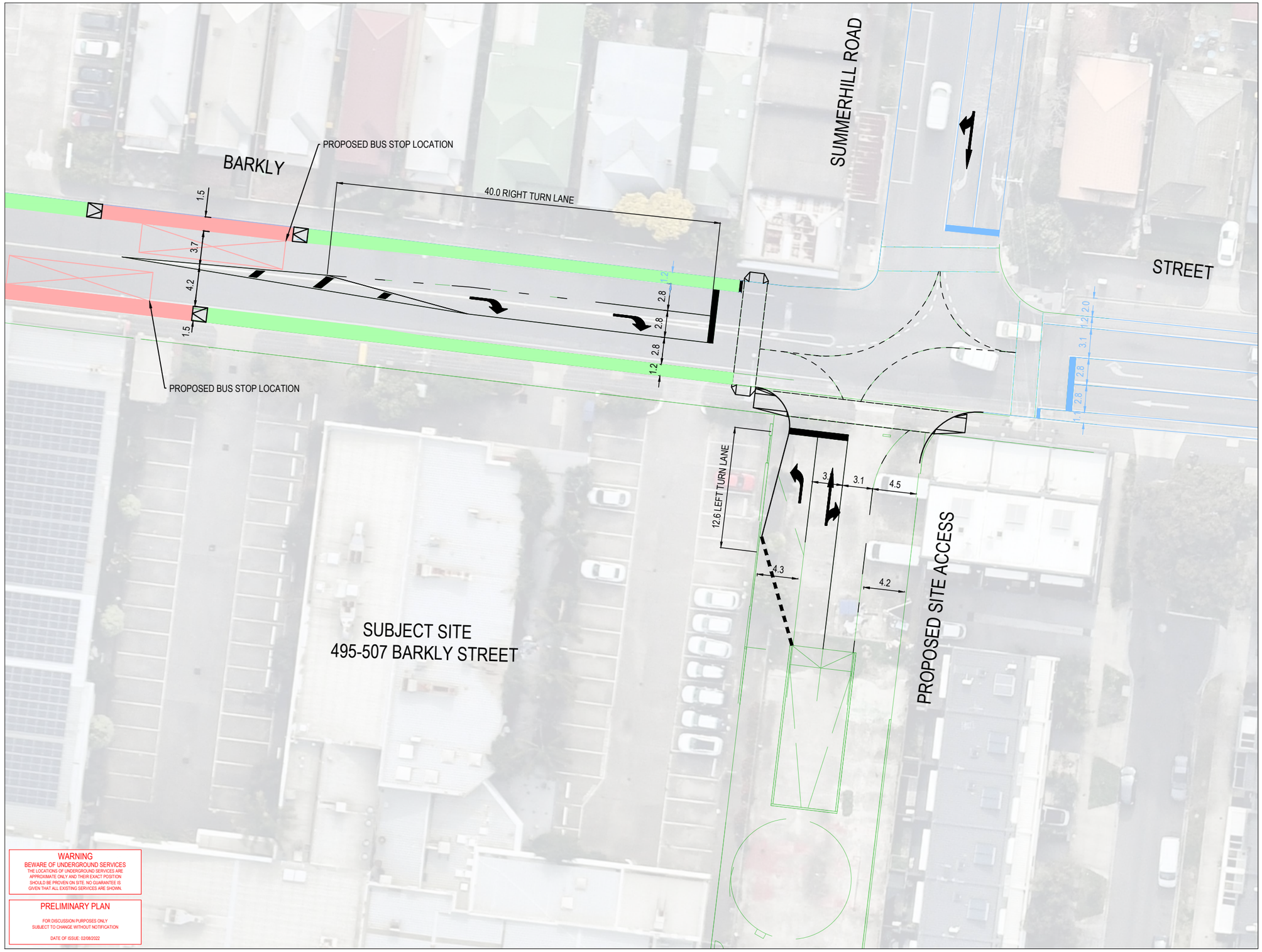

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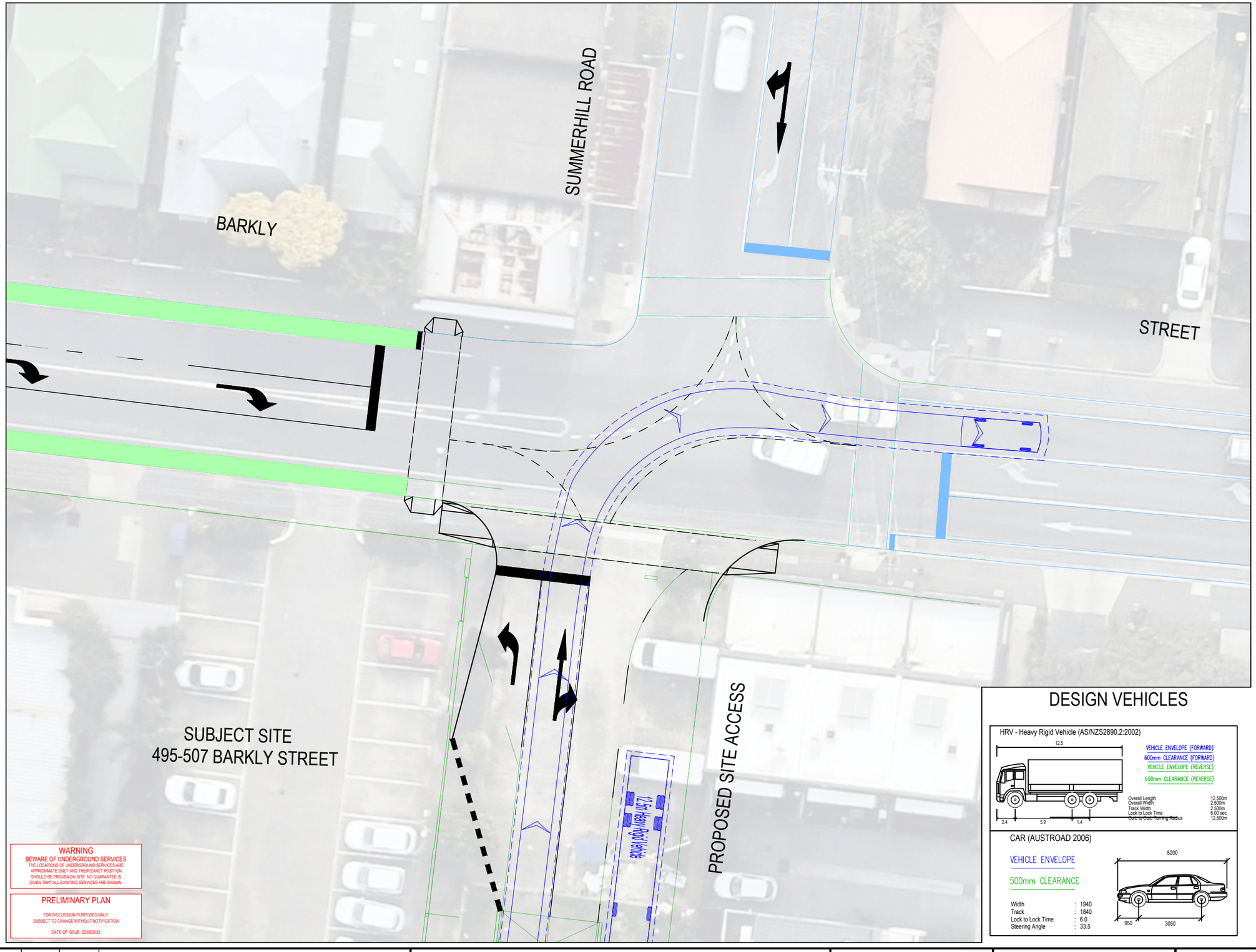

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DESIGN VEHICLES

HRV - Heavy Rigid Vehicle (AS/NZS2890.2:2002)

VEHICLE ENVELOPE (FORWARD)
600mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
600mm CLEARANCE (REVERSE)

Overall Length	12.500m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

CAR (AUSTROAD 2006)

VEHICLE ENVELOPE
500mm CLEARANCE

Width	: 1940
Track	: 1840
Lock to Lock Time	: 6.0
Steering Angle	: 33.5

N

MELWAY REF 41 J4

ISSUE	APP'D	DATE	COMMENTS
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D	S.M.	07/05/2022	Client Comments
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SCALE 1:250 @ A3	0 2.5 5	

ratio:
RATIO CONSULTANTS PTY LTD
ACN 005 422 104
8 GWYNNE STREET
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495 - 507 Barkly Street, Footscray
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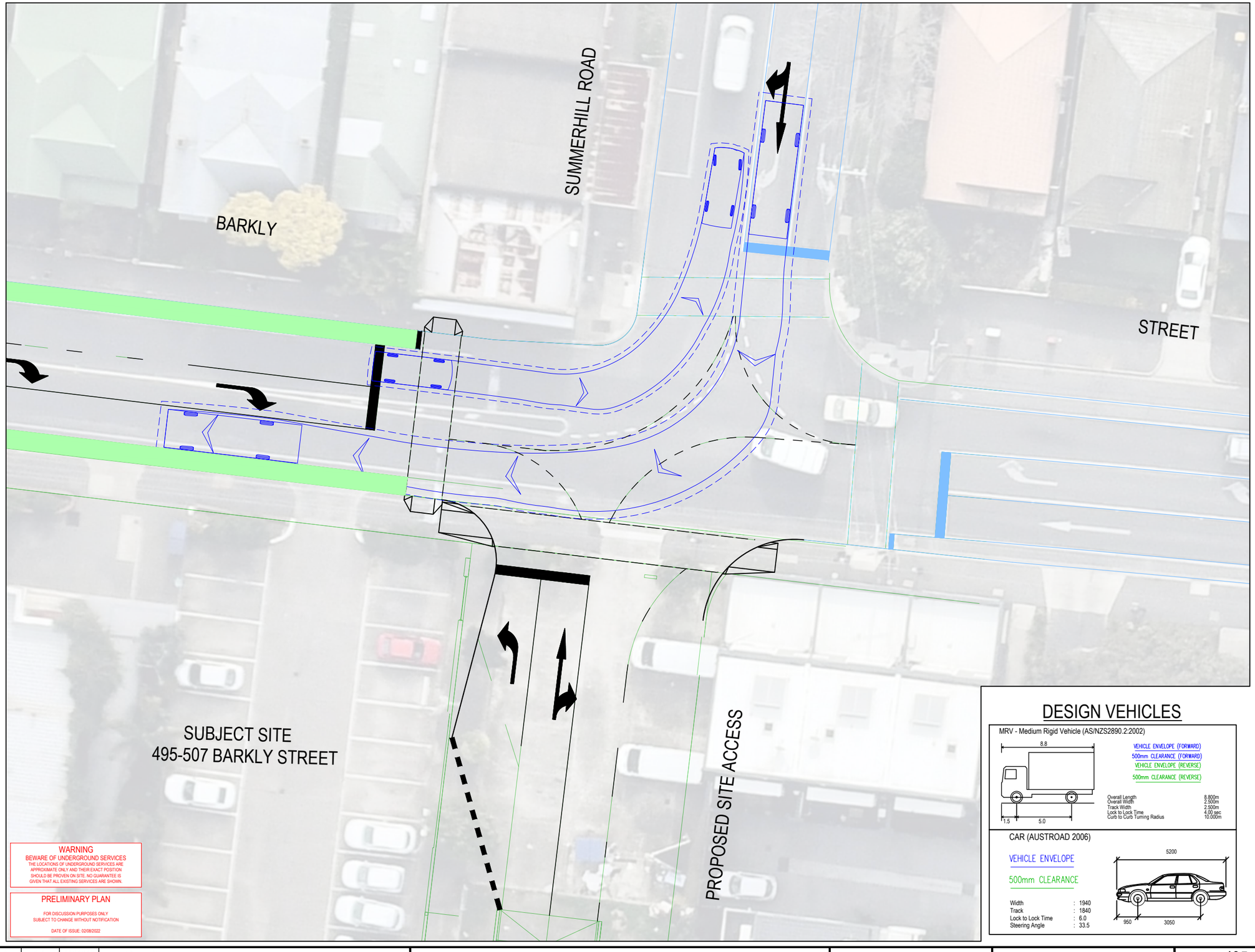

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DESIGN VEHICLES

MRV - Medium Rigid Vehicle (AS/NZS2890.2:2002)

VEHICLE ENVELOPE (FORWARD)
500mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
500mm CLEARANCE (REVERSE)

Overall Length	8.800m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

CAR (AUSTROAD 2006)

VEHICLE ENVELOPE

500mm CLEARANCE

Width	:	1940
Track	:	1840
Lock to Lock Time	:	6.0
Steering Angle	:	33.5

N

MELWAY REF 41 J4

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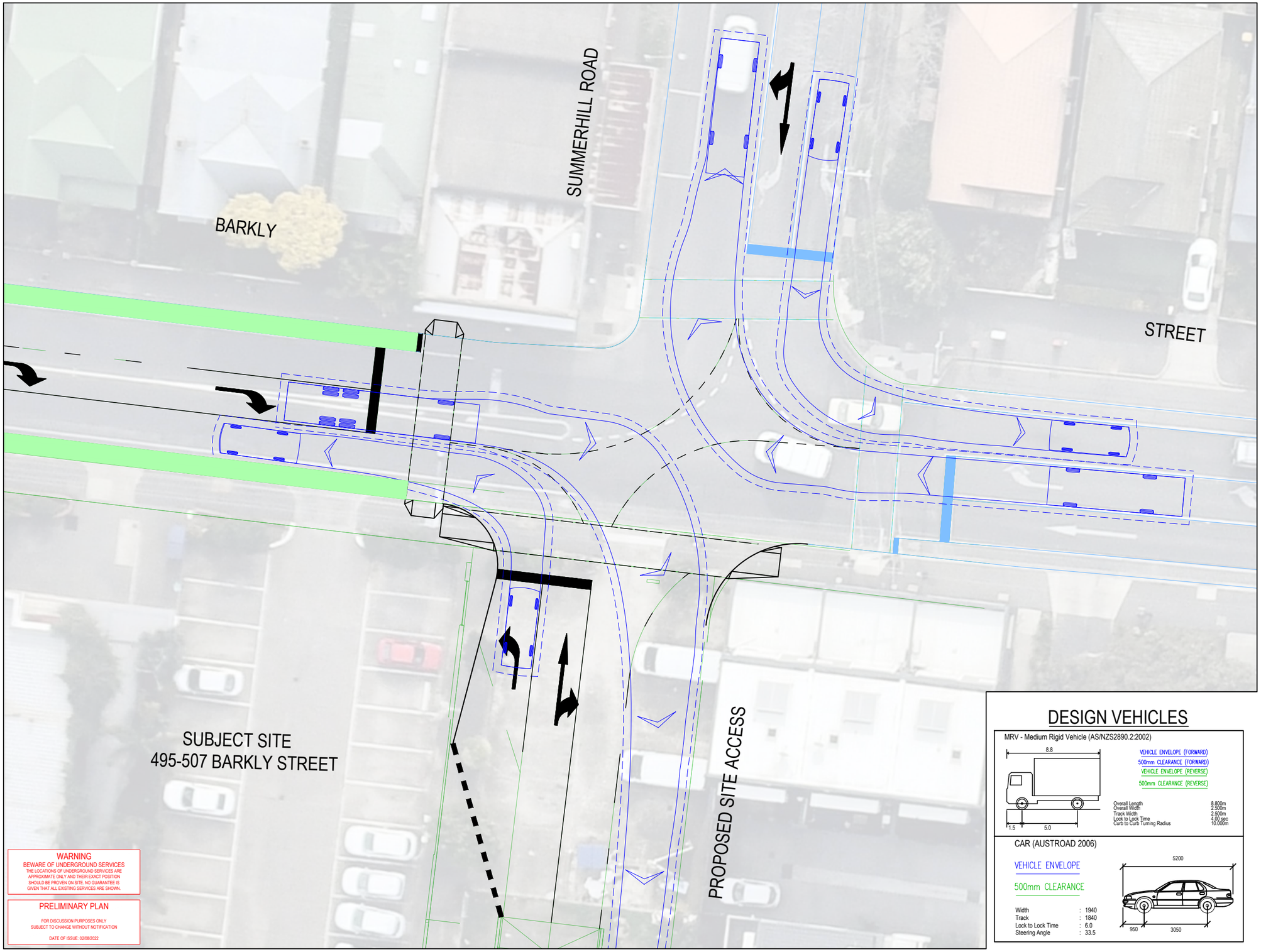

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CAR (AUSTROAD 2006)

VEHICLE ENVELOPE

500mm CLEARANCE

Width	: 1940
Track	: 1840
Lock to Lock Time	: 6.0
Steering Angle	: 33.5

N

MELWAY REF 41 J4

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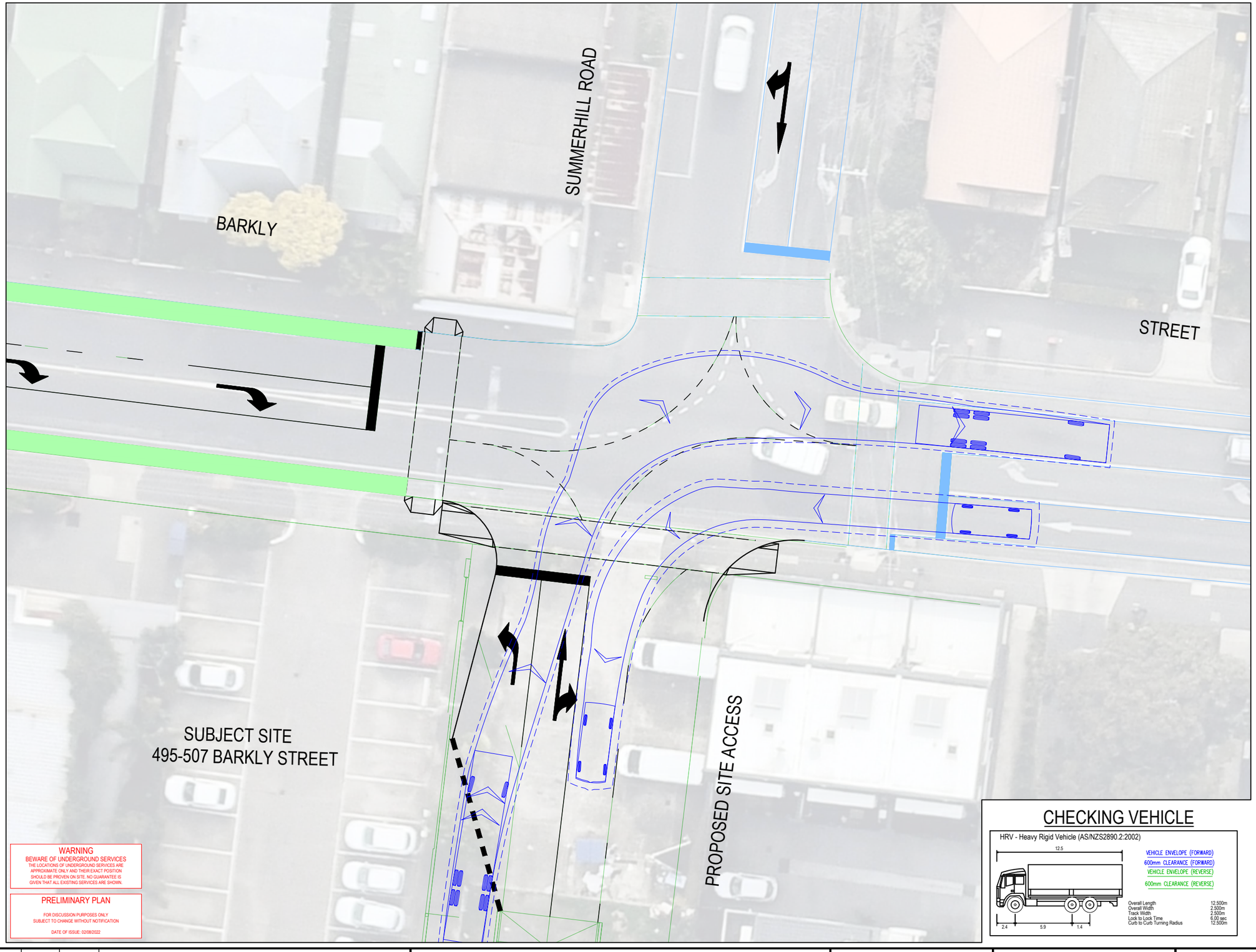

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CHECKING VEHICLE

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600mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
600mm CLEARANCE (REVERSE)

Overall Length	12.500m
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Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

N

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2. LOCAL ROAD - SUMMERHILL ROAD (SPEED ZONE 50KM/H)
3. BASE INFORMATION OBTAINED FROM NEARMAP AERIAL PHOTOGRAPHY DATABASE

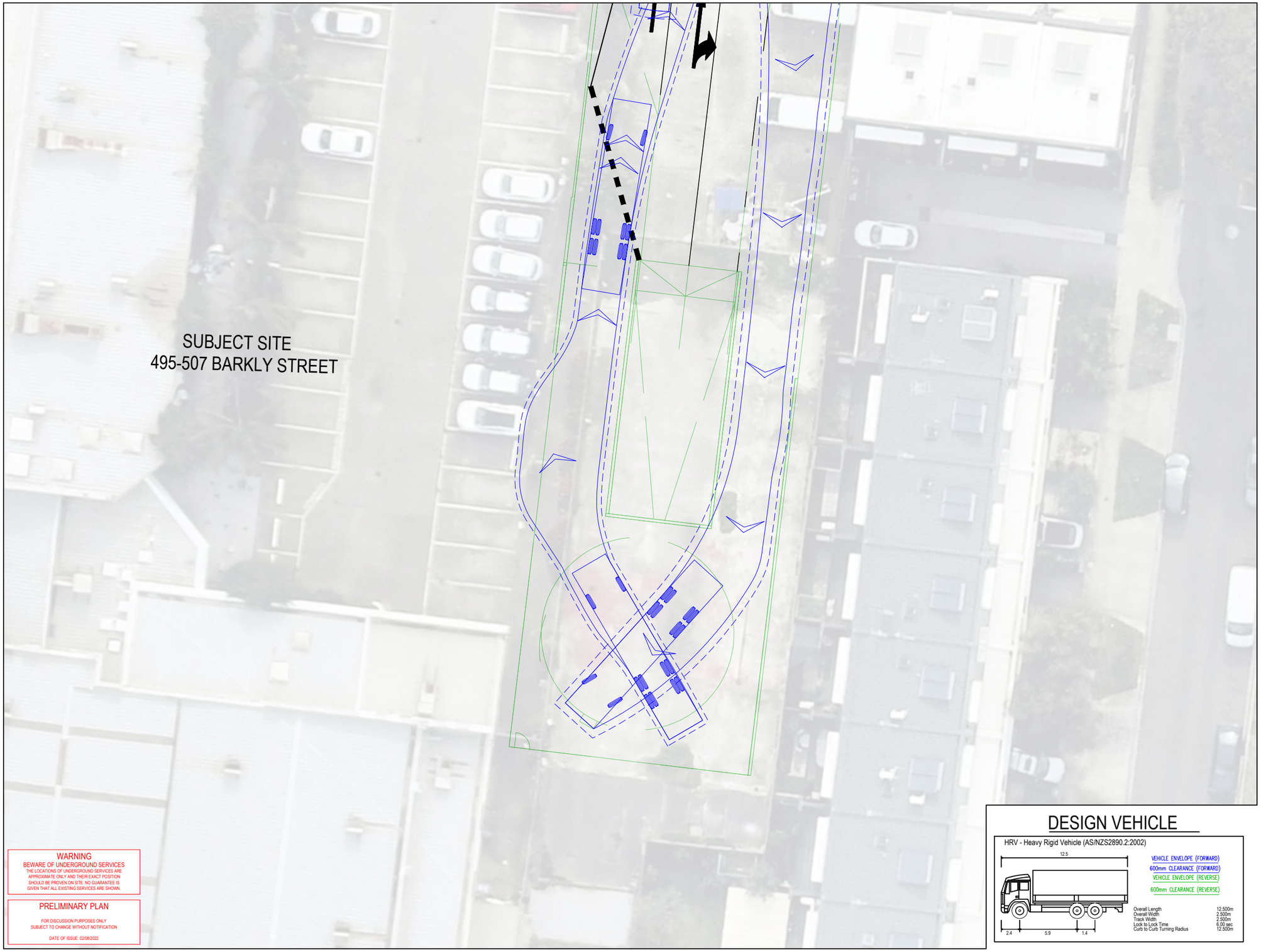
DESIGNED	S. McKenzie	11/11/21
CHECKED	C. Greenland	11/11/21
AUTHORISED	C. Greenland	11/11/21
SCALE 1:250 @ A3	0 2.5 5	

ratio:
RATIO CONSULTANTS PTY LTD
ACN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

495 - 507 Barkly Street, Footscray
City of Maribyrnong
Proposed Supermarket Development
Swept Path Assessment

DATE	SHEET NO.	DRAWING NO.	ISSUE
11/11/2021	6 of 7	18297T-CLP-003	F

Y:\18001-18500\18297T - 495-507 BARKLY STREET, FOOTSCRAY\DESIGN\DESIGN\LAYOUTS\18297T-CLP-003\18297T-CLP-003-F.DWG
02/08/2022 2:25:12 PM



LEGEND

- EXISTING
- MAJOR CONTOUR
- MINOR CONTOUR
- TITLE BOUNDARY
- ROAD RESERVE
- ELECTRICITY
- TELECOM
- WATER
- DRAIN
- SEWER
- GAS
- TOP OF BANK
- TOE OF BANK
- FUTURE DEVELOPMENT
- EXISTING DEVELOPMENT
- PROPOSED LINE MARKING
- PROPOSED KERB

WARNING
BEWARE OF UNDERGROUND SERVICES
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION
DATE OF ISSUE: 02/08/2022

DESIGN VEHICLE

HRV - Heavy Rigid Vehicle (AS/NZS2890.2:2002)

VEHICLE ENVELOPE (FORWARD)
600mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
600mm CLEARANCE (REVERSE)

Overall Length	12.500m
Overall Width	2.500m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

N

MELWAY REF 41 J4

ISSUE	APP'D	DATE	COMMENTS
F	C.G	02/08/2022	Added Council Design
D	S.M.	07/05/2022	Client Comments
C	S.M.	07/05/2022	Client Comments
B	S.M.	30/05/2022	Client Comments
A	S.M.	11/11/2021	Initial Issue

GENERAL NOTES

1. LOCAL ROAD - BARKLY STREET (SPEED ZONE 50KM/H)
2. LOCAL ROAD - SUMMERHILL ROAD (SPEED ZONE 50KM/H)
3. BASE INFORMATION OBTAINED FROM NEARMAP AERIAL PHOTOGRAPHY DATABASE

DESIGNED	S. McKenzie	11/11/21
CHECKED	C. Greenland	11/11/21
AUTHORISED	C. Greenland	11/11/21
SCALE 1:250 @ A3	0 2.5 5	

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DATE	SHEET NO.	DRAWING NO.	ISSUE
11/11/2021	7 of 7	18297T-CLP-003	F

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Appendix E Bicycle Parking Specifications

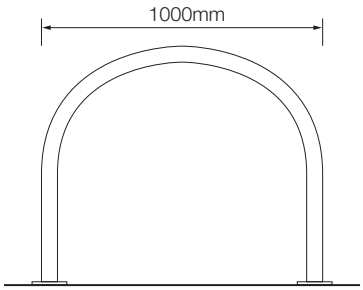
Arc de Triomphe™

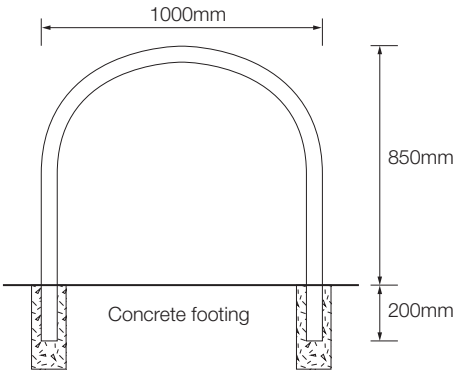
Galvanised finish / Stainless Steel finish

Features

- Each rail supports two adult bikes in an upright position
- Can be either bolted to a concrete slab or concreted in situ
- Available in stainless steel or galvanised steel
- Provides the ability to lock both wheels and frame
- Suitable for foyers and entry areas

Dimensions





Specifications

Material options

- Galvanised (Duragal)
- 316 Marine grade stainless steel

Fixing options

- Welded flange - Bolt on
- In situ

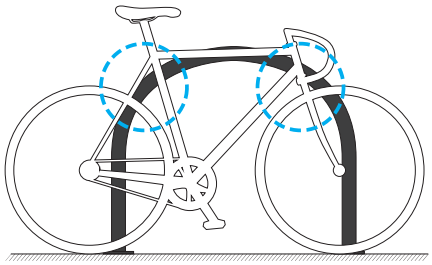
Recommended fasteners

- Galvanised Dynabolts (M10 x 65mm)
- Stainless Dynabolts (M10 x 65mm)
- Shear Nut security fasteners

Dimensions

1000mm [w] x 850mm [h]

Locking Points



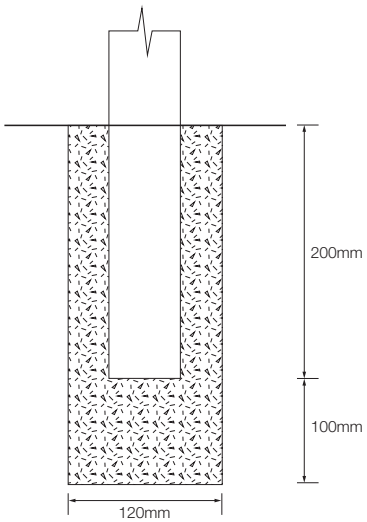
BICYCLE NETWORK BIKE PARKING

DESIGN. SUPPLY. INSTALL.

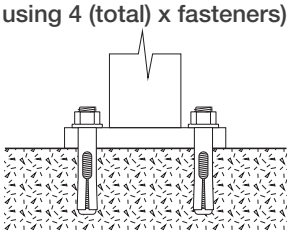
Bicycle Network ABN 41 026 835 903
p. 1300 727 563 e. parking@bicyclenetwork.com.au bikeparking.com.au
VIC Level 4, 246 Bourke Street, Melbourne VIC 3000 NSW 234 Crown Street, Darlinghurst NSW 2010
TAS 210 Collins Street, Hobart TAS 7000 NT Suite 5, 18-20 Cavenagh Street, Darwin 0800

Fixing options

In situ (Concrete footing)

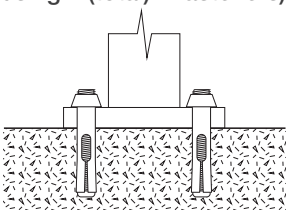


Welded flange (Bolt on) using 4 (total) x fasteners)



Shown with M10 x 65mm fastener

Welded flange (Security heads) using 4 (total) x fasteners)

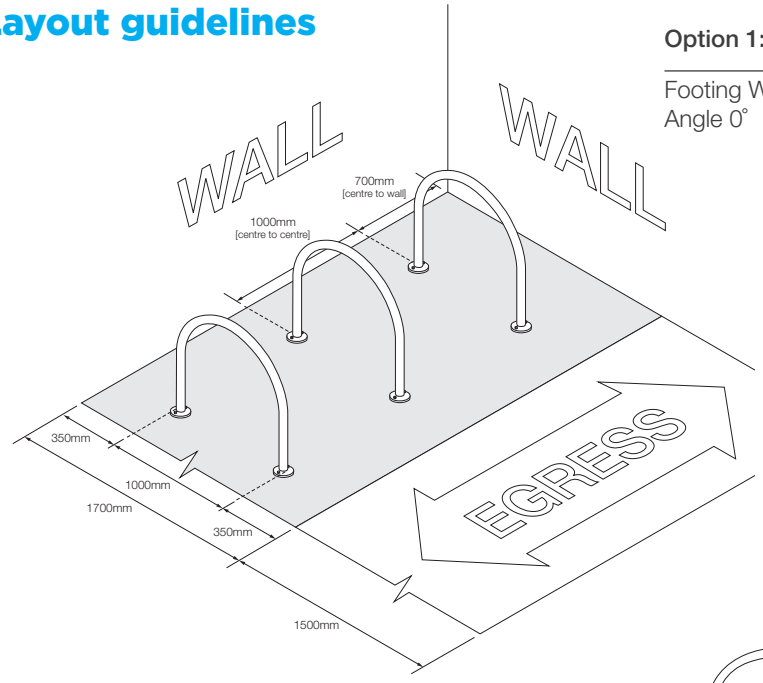


Shown with M10 x 65mm Shear Nuts

Layout guidelines

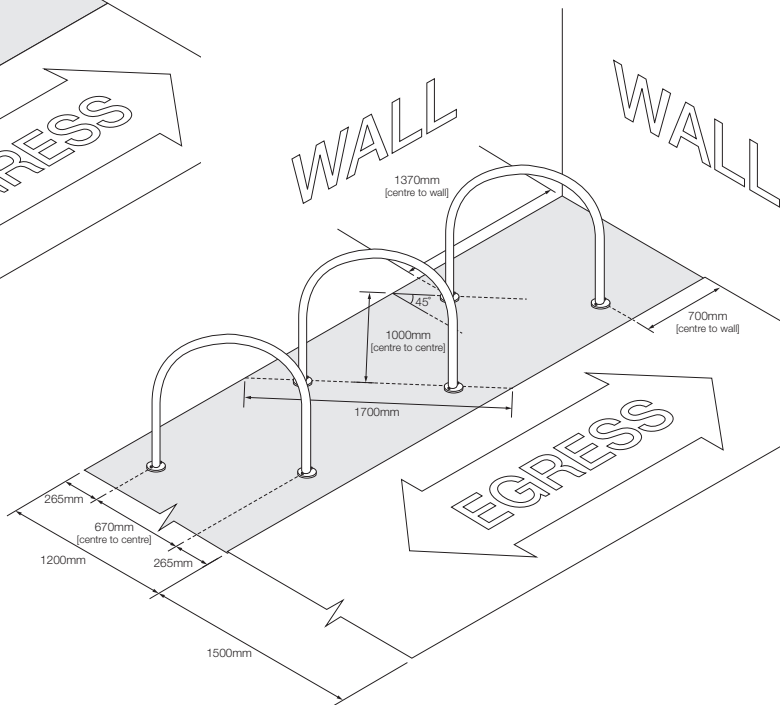
Option 1:

Footing Width 1700mm
Angle 0˚

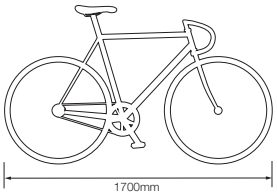


Option 2:

Footing Width 1200mm
Angle 45˚



Typical Bicycle Length



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Ned Kelly™

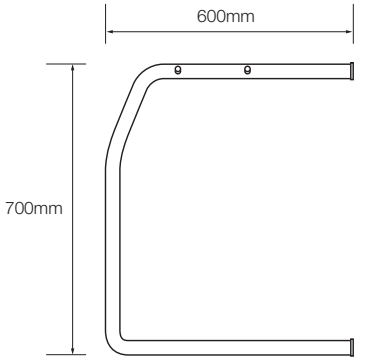
Zinc finish

Black powder coat finish

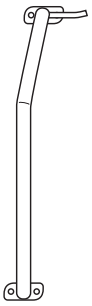
Features

- Each rail provides storage for a single bike
- Suits bikes with full length mud guards
- Available in Zinc finish or Black powder coat over mild steel
- Provides the ability to lock the main frame and one wheel
- Support prongs with protective coating prevent damage to rim
- Can be used with custom framing – no wall needed

Dimensions



SIDE



FRONT

Specifications

Material options

- Zinc finish
- Black powder coat over mild steel
- Stainless steel - *Pre-order only*

Fixing options

- Bolt on to wall
- Fixed to support framing

Recommended fasteners – wall

- Dynabolts (M8 x 40mm)
- Shear Nut security fasteners

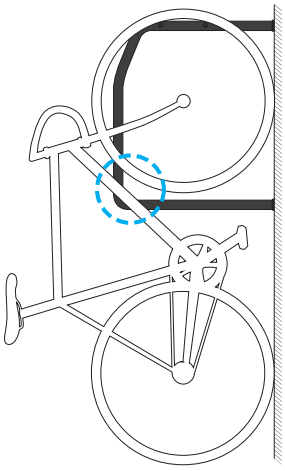
Recommended fasteners – framing

- Bolt and nut (M10 x 60mm)
- Tek screws

Dimensions

125mm [w] x 700mm [h] x 600mm [d]

Locking Points



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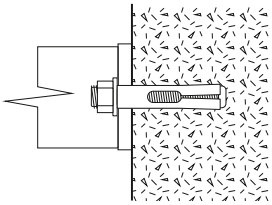
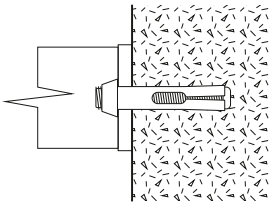
Fixing options

Fix to a wall using 4x fasteners or Shear Nuts

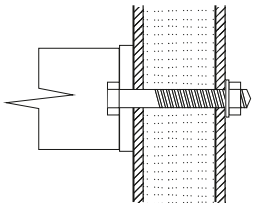


Shown with M8 x 40mm fastener

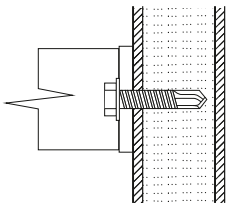


Shown with M8 x 40mm Shear Nuts

Fix to a frame using 4x bolts or Tek Screws

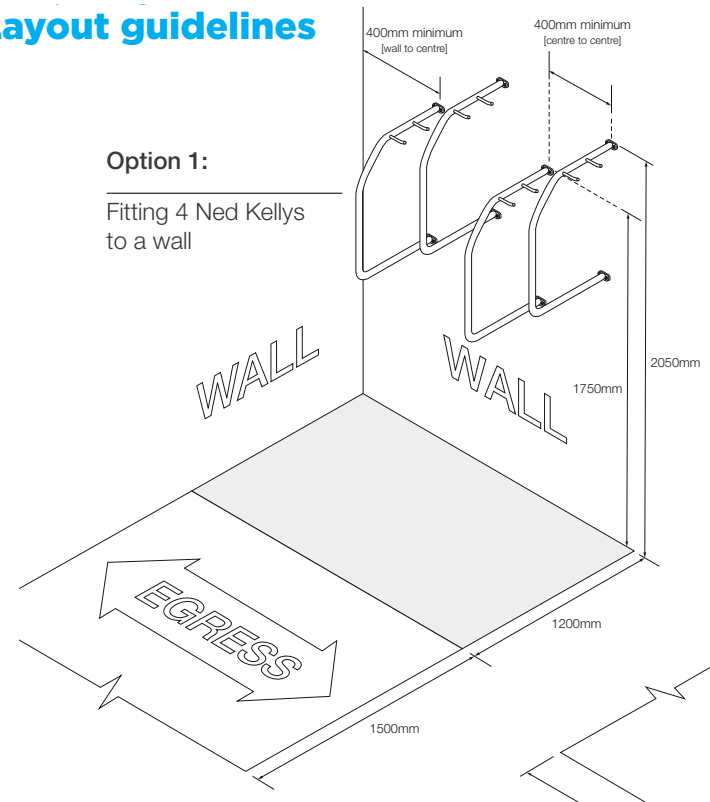


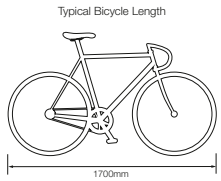
Shown with M10 x 60mm Bolt, Washer & Nut

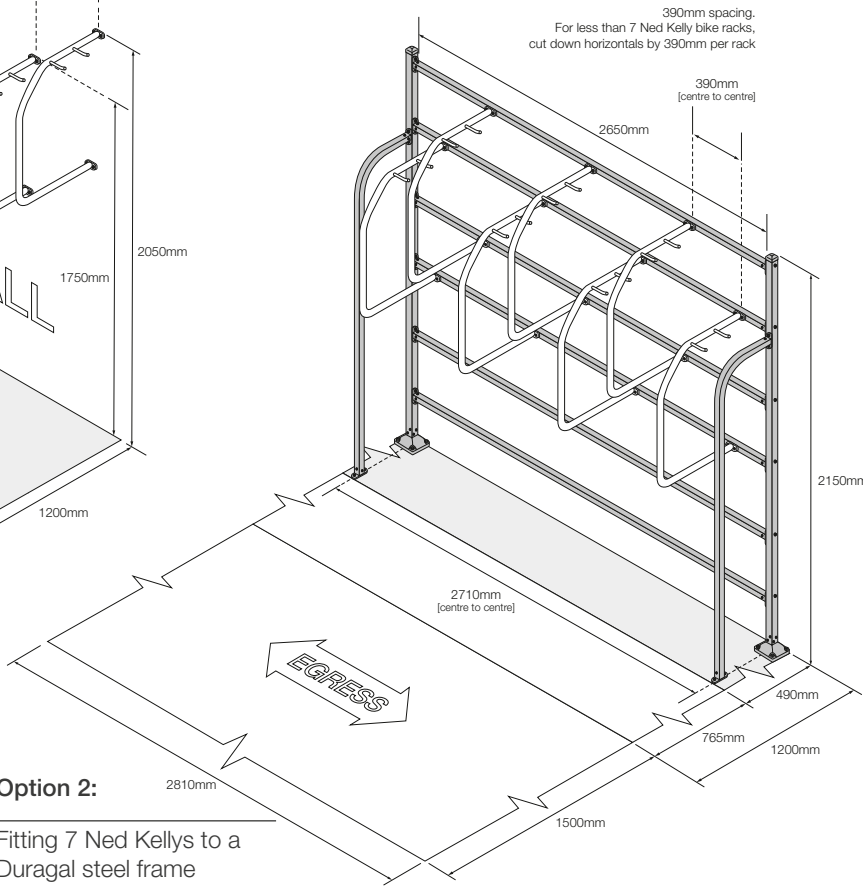


Shown with Tek Screw

Layout guidelines







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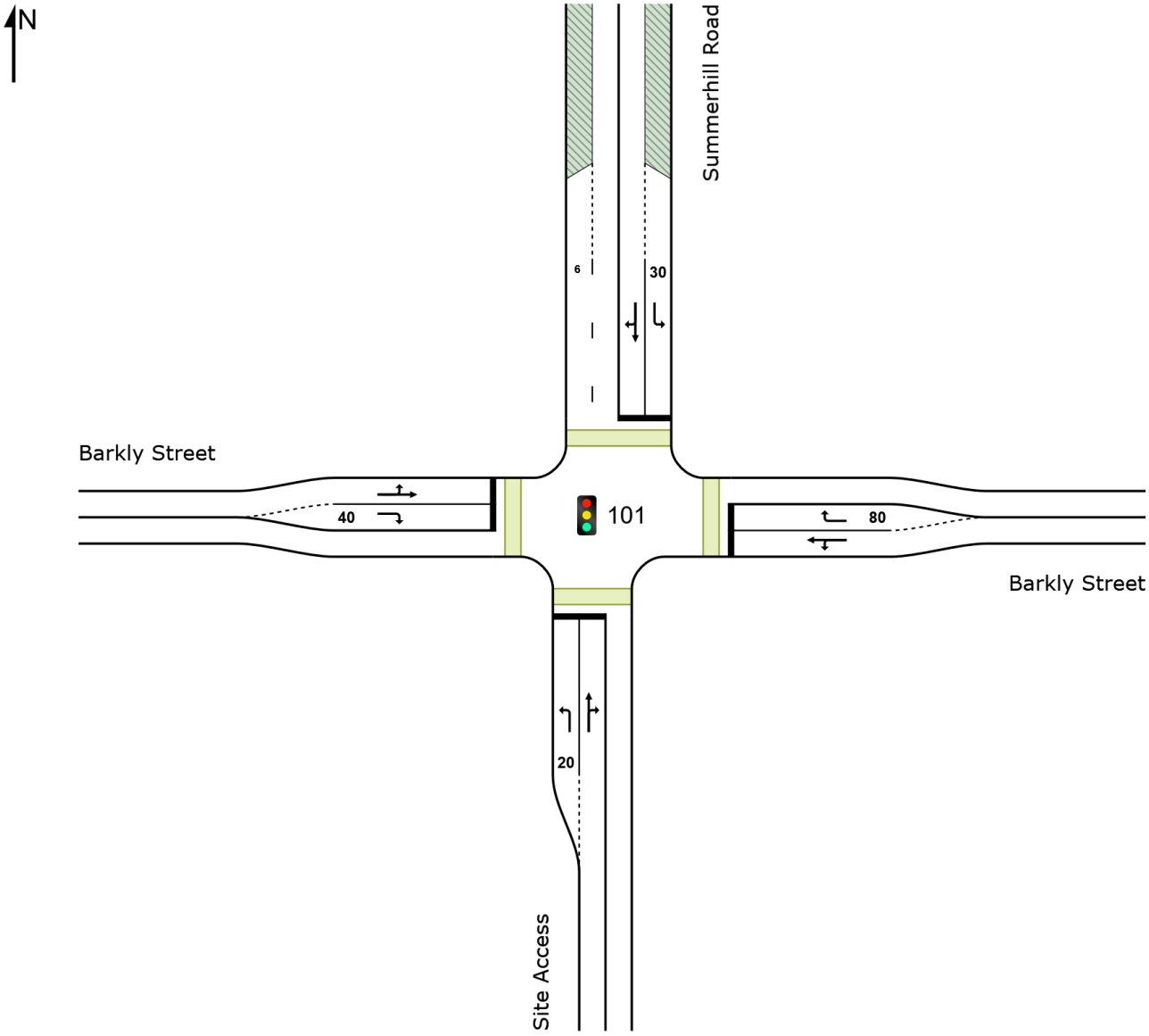
Appendix F Post Development Intersection Operating Conditions

SITE LAYOUT

Site: 101 [Barkly St/Summerhill Rd-Post-PM (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Post Development
PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Barkly St/Summerhill Rd-Post-PM (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Post Development
PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Site Access														
1	L2	74	0.0	78	0.0	0.172	31.3	LOS C	2.6	18.3	0.82	0.73	0.82	38.9
2	T1	37	0.0	39	0.0	0.697	47.4	LOS D	5.4	38.0	1.00	0.85	1.15	32.8
3	R2	74	0.0	78	0.0	0.697	52.4	LOS D	5.4	38.0	1.00	0.85	1.15	32.2
Approach		185	0.0	195	0.0	0.697	42.9	LOS D	5.4	38.0	0.93	0.80	1.02	34.7
East: Barkly Street														
4	L2	71	0.0	75	0.0	*0.720	31.5	LOS C	20.6	143.9	0.90	0.83	0.90	40.9
5	T1	463	0.0	487	0.0	*0.720	26.0	LOS C	20.6	143.9	0.90	0.83	0.90	41.7
6	R2	278	0.0	293	0.0	0.394	26.2	LOS C	9.2	64.1	0.76	0.79	0.76	41.0
Approach		812	0.0	855	0.0	0.720	26.6	LOS C	20.6	143.9	0.85	0.82	0.85	41.4
North: Summerhill Road														
7	L2	214	0.0	225	0.0	0.248	16.7	LOS B	5.0	35.0	0.62	0.74	0.62	46.1
8	T1	36	0.0	38	0.0	0.678	46.5	LOS D	5.2	36.7	1.00	0.84	1.12	32.9
9	R2	72	0.0	76	0.0	0.678	52.1	LOS D	5.2	36.7	1.00	0.84	1.12	32.4
Approach		322	0.0	339	0.0	0.678	27.9	LOS C	5.2	36.7	0.75	0.77	0.79	40.4
West: Barkly Street														
10	L2	34	0.0	36	0.0	*0.706	55.2	LOS E	9.3	65.0	1.00	0.92	1.08	32.4
11	T1	173	0.0	182	0.0	*0.706	49.2	LOS D	9.3	65.0	1.00	0.92	1.08	32.9
12	R2	71	0.0	75	0.0	0.259	42.5	LOS D	3.0	20.8	0.92	0.76	0.92	34.6
Approach		278	0.0	293	0.0	0.706	48.2	LOS D	9.3	65.0	0.98	0.88	1.04	33.3
All Vehicles		1597	0.0	1681	0.0	0.720	32.5	LOS C	20.6	143.9	0.86	0.82	0.89	38.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Site Access												
P1	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	202.3	211.9	1.05
East: Barkly Street												

P2	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	202.3	211.9	1.05
North: Summerhill Road												
P3	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	204.8	215.2	1.05
West: Barkly Street												
P4	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	202.3	211.9	1.05
All Pedestrians		200	211	39.3	LOS D	0.1	0.1	0.94	0.94	202.9	212.7	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [Barkly St/Summerhill Rd-Post-PM (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Post Development
PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

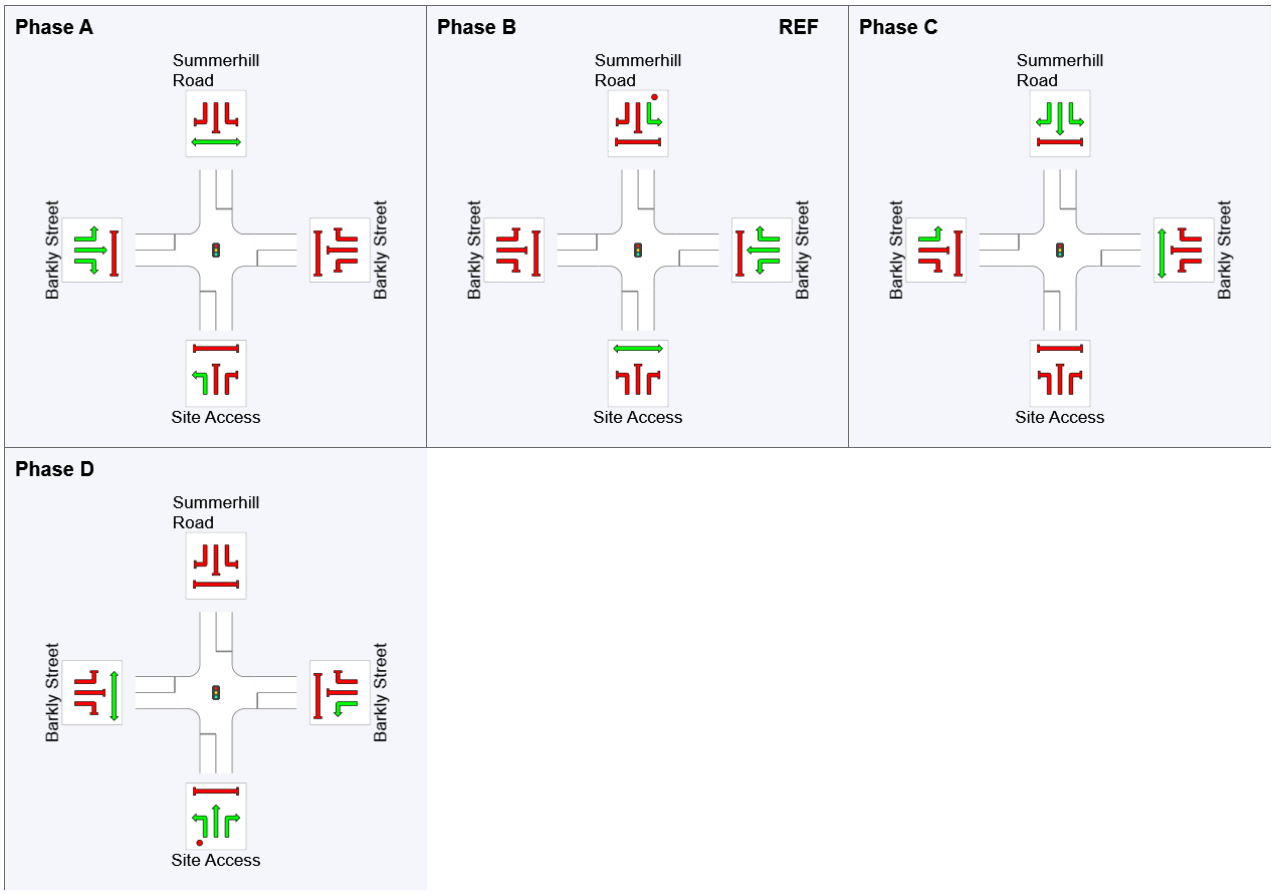
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase B
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

Phase Timing Summary

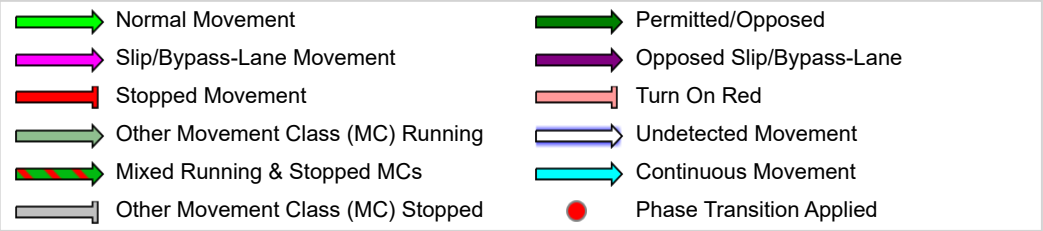
Phase	A	B	C	D
Phase Change Time (sec)	70	0	42	56
Green Time (sec)	14	36	8	8
Phase Time (sec)	20	42	14	14
Phase Split	22%	47%	16%	16%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 101 [Barkly St/Summerhill Rd-Post-SAT (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Post Development
PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Site Access														
1	L2	65	0.0	68	0.0	0.138	29.5	LOS C	2.2	15.4	0.79	0.72	0.79	39.7
2	T1	33	0.0	35	0.0	0.615	46.2	LOS D	4.7	32.8	1.00	0.81	1.06	33.1
3	R2	65	0.0	68	0.0	0.615	51.2	LOS D	4.7	32.8	1.00	0.81	1.06	32.5
Approach		163	0.0	172	0.0	0.615	41.5	LOS D	4.7	32.8	0.92	0.77	0.96	35.2
East: Barkly Street														
4	L2	65	0.0	68	0.0	*0.722	33.0	LOS C	19.9	139.2	0.92	0.84	0.92	40.3
5	T1	441	0.0	464	0.0	*0.722	27.4	LOS C	19.9	139.2	0.92	0.84	0.92	41.1
6	R2	256	0.0	269	0.0	0.384	27.5	LOS C	8.6	60.4	0.77	0.79	0.77	40.4
Approach		762	0.0	802	0.0	0.722	27.9	LOS C	19.9	139.2	0.87	0.82	0.87	40.8
North: Summerhill Road														
7	L2	254	0.0	267	0.0	0.309	18.2	LOS B	6.4	44.9	0.66	0.75	0.66	45.2
8	T1	33	0.0	35	0.0	0.717	47.2	LOS D	5.6	39.2	1.00	0.86	1.17	32.6
9	R2	81	0.0	85	0.0	0.717	52.8	LOS D	5.6	39.2	1.00	0.86	1.17	32.1
Approach		368	0.0	387	0.0	0.717	28.4	LOS C	6.4	44.9	0.77	0.79	0.82	40.2
West: Barkly Street														
10	L2	38	0.0	40	0.0	*0.701	53.0	LOS D	10.3	72.4	0.99	0.91	1.06	33.1
11	T1	196	0.0	206	0.0	*0.701	47.0	LOS D	10.3	72.4	0.99	0.91	1.06	33.6
12	R2	65	0.0	68	0.0	0.207	40.3	LOS D	2.6	18.4	0.89	0.75	0.89	35.4
Approach		299	0.0	315	0.0	0.701	46.3	LOS D	10.3	72.4	0.97	0.88	1.02	33.9
All Vehicles		1592	0.0	1676	0.0	0.722	32.9	LOS C	19.9	139.2	0.87	0.82	0.90	38.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Site Access												
P1	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	202.3	211.9	1.05
East: Barkly Street												

P2	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	202.3	211.9	1.05
North: Summerhill Road												
P3	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	204.8	215.2	1.05
West: Barkly Street												
P4	Full	50	53	39.3	LOS D	0.1	0.1	0.94	0.94	202.3	211.9	1.05
All Pedestrians		200	211	39.3	LOS D	0.1	0.1	0.94	0.94	202.9	212.7	1.05

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 101 [Barkly St/Summerhill Rd-Post-SAT (Site Folder: General)]

Barkly Street/ Summerhill Road Intersection
Post Development
PM Peak
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)

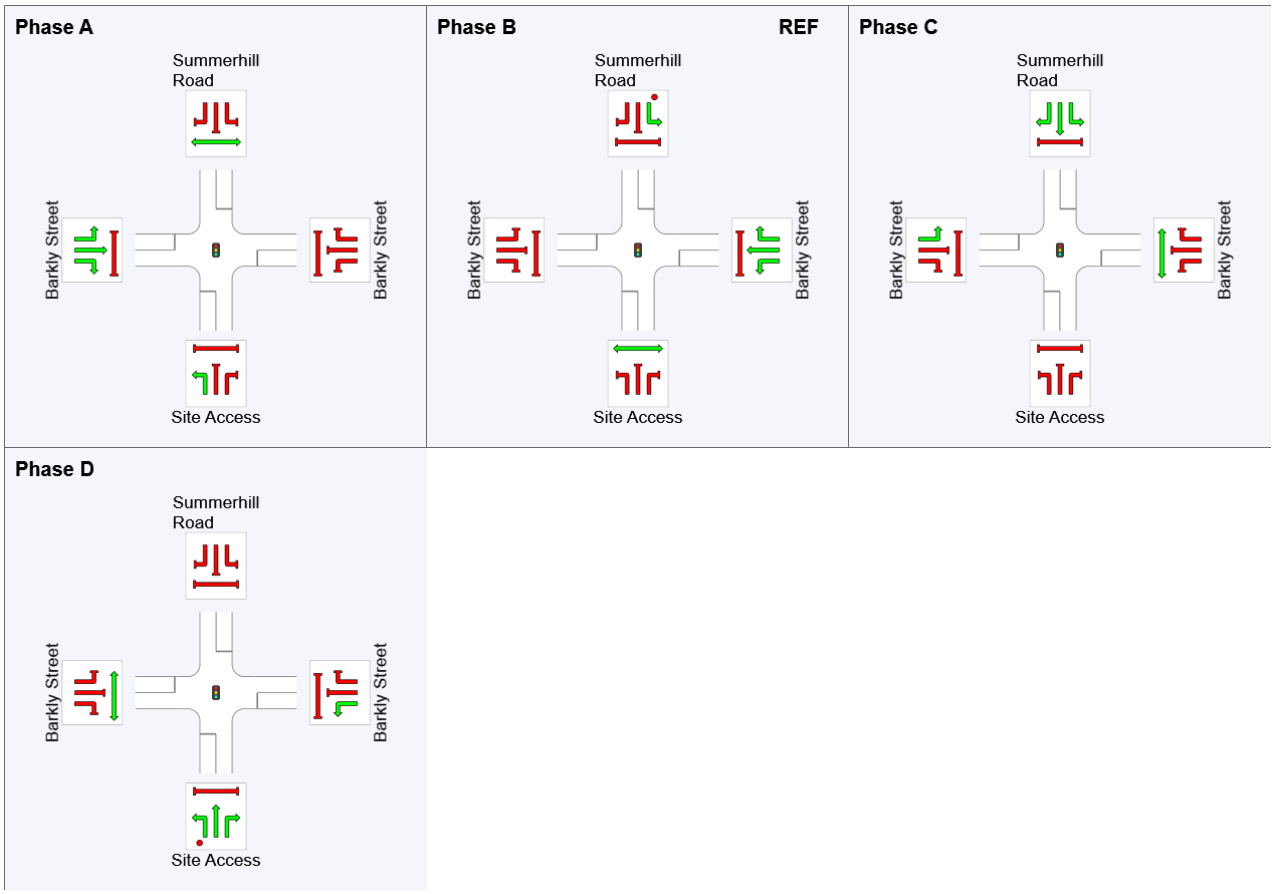
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase B
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

Phase Timing Summary

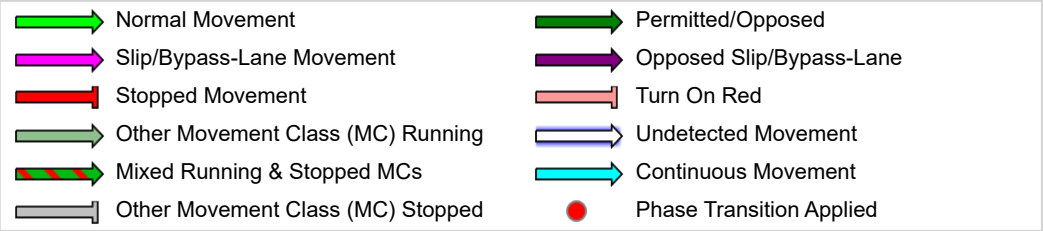
Phase	A	B	C	D
Phase Change Time (sec)	68	0	40	54
Green Time (sec)	16	34	8	8
Phase Time (sec)	22	40	14	14
Phase Split	24%	44%	16%	16%

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



deep end services

West Footscray

Need & Economic Impact Assessment

Prepared for Fabcot Pty Limited
4 November 2022

Deep End Services
Deep End Services is an economic research and property consulting firm based in Melbourne. It provides a range of services to local and international retailers, property owners and developers including due diligence and market scoping studies, store benchmarking and network planning, site analysis and sales forecasting, market assessments for a variety of land uses, and highest and best use studies.

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Document Name
Woolworths report - West Footscray NEIA - 4 Nov 22

Conventions and data sources

All spending data includes GST and is expressed in constant 2022 dollars where appropriate.

Sources include:

Australian Bureau of Statistics

- 2021 Census
- 2016 Census
- Estimated resident population, 2011-2021
- Dwelling approvals, 2011/12-2021/22
- Overseas Arrivals and Departures, Australia 2005-2022

Deloitte Access Economics

- Spend per capita estimates and forecasts by category

Fabcot

- i2C Architects proposed development plans

.id consulting

- Local area population projections for City of Maribyrnong (January 2021)

Market Data Systems

- MarketInfo retail spending propensity by category

Nearmap

- Aerial imagery

Victorian Government

- VicRoads Open Data Traffic Volumes, 2020

Contents

Tables + Figures

1

Introduction

1.1 Site context

The subject site is located at 495-507 Barkly Street, West Footscray within the West Footscray Neighbourhood Activity Centre ("NAC").

As shown in Figure 1, the site comprises approximately 6,291 sqm of land with an approximate 83.8 metre frontage to Barkly Street.

To the west of the subject site is an IGA supermarket while to the east and south are townhouse developments.

A bus stop for route 220 – which runs from Sunshine Station to the city via Footscray – is located directly in front of the subject site while West Footscray Station is located 1 km to the south of the subject site.

The subject site is currently in the Mixed-Use Zone ("MUZ") and is affected by Design & Development Overlay Schedule 7 ("DDO7") and an Environmental Audit Overlay.

A recent Planning Panel hearing pertaining to the Maribyrnong Planning Scheme Amendment C162 has recommended that 495-507 Barkly Street, West Footscray be rezoned from MUZ to the Commercial 1 Zone ("C1Z"), subject to Council satisfying itself that notice requirements have been met (see also section 1.3 of this report).

Figure 1—Site context

Source: Deep End Services, Nearmap (image captured February 2022)

1.2 Development proposal

The subject site benefits from development permit TP196/2019 approved by VCAT on 17 April 2020 for 42 dwellings (primarily townhouses in 2- and 3-storey formats) and six retail premises with total floorspace of 446 sqm fronting Barkly Street.

The current permit replaces a prior permit for a 5-storey development which expired in December 2020.

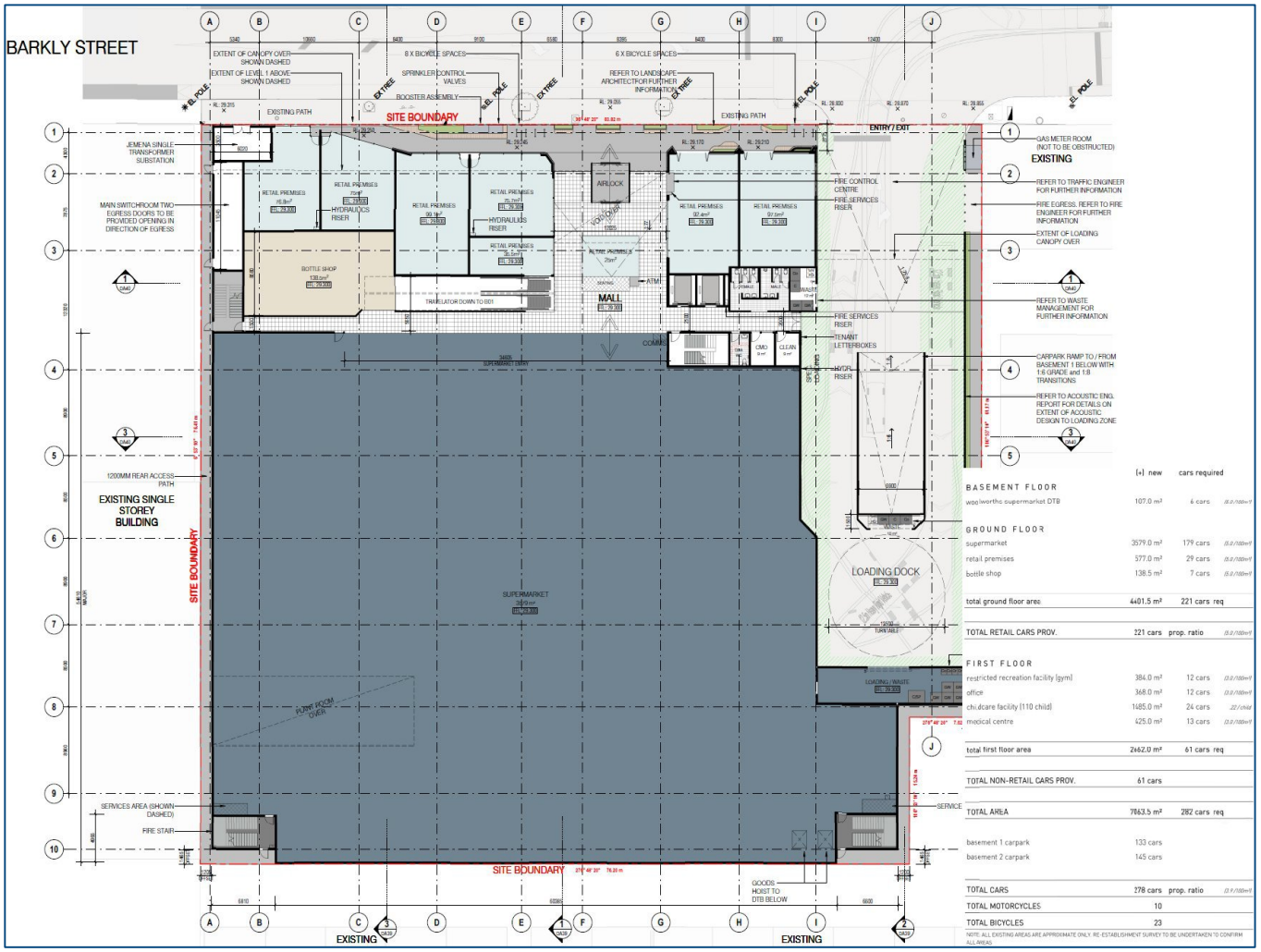
Fabcot has prepared a preliminary concept plan for the ground floor of the subject site which comprises the following indicative tenancy sizes:

- Woolworths supermarket 3,579 sqm
- Specialty tenancies 577 sqm
- Specialty liquor 139 sqm
- Total 4,295 sqm

A total of 2,662 sqm of commercial floor space is proposed for the first floor of the development – consisting of 368 sqm of commercial office space, a 384 sqm gym, a 425 sqm medical centre and a 1,485 sqm childcare centre.

Two basement levels would provide parking for approximately 278 vehicles (133 on basement level 1 and 145 on basement level 2) to service the requirements of the centre's diverse patrons throughout its operating hours.

Figure 2—Development plan



Source: Fabcot, i2C Architects

1.3 Strategic context

In October 2018, Maribyrnong City Council ("Council") adopted the West Footscray Neighbourhood Plan ("WFNP").

The WFNP is a long-term plan, shaped by community and stakeholder consultation, which seeks to present objectives, strategies and actions to facilitate the appropriate land use and built form for the core activity area along Barkly Street and West Footscray station precinct.

To help deliver the WFNP, Council subsequently sought changes to the Maribyrnong Planning Scheme ("Scheme") to update land use zones and introduce built form changes to the relevant areas along Barkly Street. These changes are proposed to be implemented via Amendment C162 ("Am C162") to the Scheme.

Am C162 was exhibited in November 2020 with plans that detailed specific parcels within the West Footscray NAC to be rezoned from the General Residential, Mixed Use and Commercial 2 zones to the C1Z. The proposed rezonings contained within AM C162 excluded the subject site from proposed rezoning, keeping the land zoned as MUZ under the Scheme.

At Council's request, the Minister for Planning appointed an independent Planning Panel to consider the amendment and all submissions. The Panel held a public hearing on 7-9 March 2022, providing an opportunity for all submitters to be heard in an independent forum.

The Panel provided its report on 2 May 2022, recommending Council adopt the Amendment with some changes.

A key focus of the Panel report was whether the Amendment had been applied consistently, and whether "essentially identical parcels of land have been treated differently for no explicit reason".

Ultimately, the appointed Panel concluded:

- It was appropriate for the Panel to consider the proposed rezoning of the Fabcot Land.
- There was sufficient justification to support the rezoning of the Fabcot Land from MUZ to the C1Z.
- It is appropriate to rezone the Fabcot Land to the C1Z, subject to Council satisfying itself that notice requirements are met.

These findings subsequently led the Panel to recommend that Council:

- Rezone 495-507 Barkly Street, West Footscray (i.e. the subject site) from the MUZ to the C1Z, subject to Council satisfying itself that notice requirements have been met.

As far as Deep End Services is aware, Council has not decided whether or not to adopt the Amendment.

2

Catchment analysis

2.1 Catchment definition

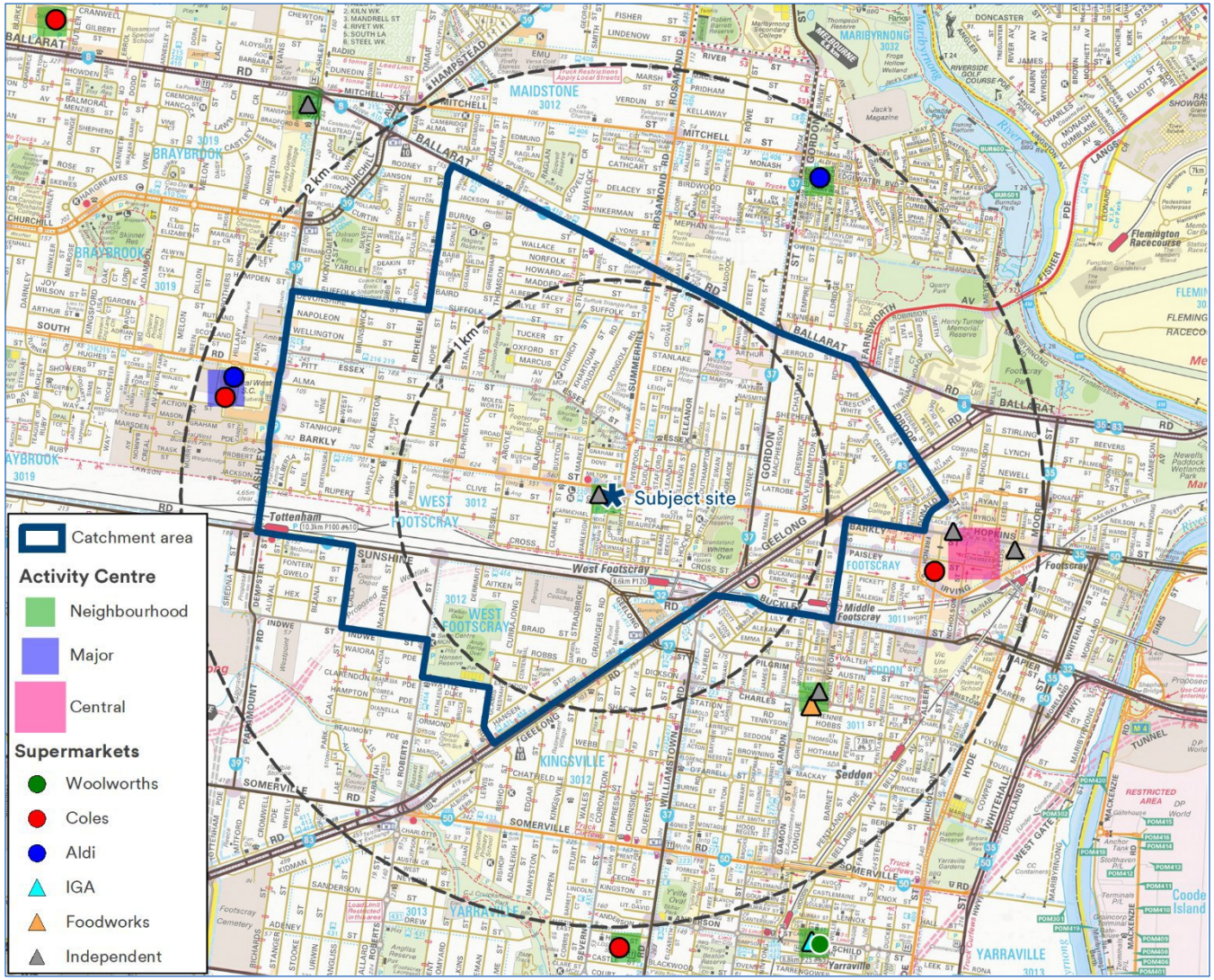
The catchment area for the proposed Fabcot development at West Footscray reflects several factors including road and other customer movement networks, physical barriers, competitor locations, the relative size and attractiveness of the proposed development and the existing trade area of the IGA supermarket on the site adjoining the subject site.

The latter has been informed by Vista location data purchased from Near which provides details of the geolocation of customers' smartphone devices where location services have been switched on as well as the inferred residential address derived from the device's typical location during the evening.

The defined catchment shown in Figure 3 encompasses the suburb of West Footscray as well as the western section of Footscray. The IGA and West Footscray NAC are the only major forms of retail contained within the defined area.

The catchment is generally confined to an area which is within 1.5 km of the subject site. Small extensions of the catchment across Geelong Road and the train line are adopted due to good linkages via Barkly Street and Stradbroke Street respectively.

Figure 3—Catchment area



Deep End services; Ausway; MapInfo

2.2 Demographics

The key demographic indicators for the catchment compared to Melbourne metropolitan averages (shown in Table 1 as at the 2021 ABS Census) are as follows:

- Smaller household sizes, underscored by a higher-than-average instance of couples without children and lone person households.
- Higher proportion of persons aged between 20 and 49 years.
- Higher average individual and household incomes.
- Slightly higher proportion of residents born in Australia as well as a notable over indexation of residents born in Vietnam.
- Higher proportion of townhouse/semi-detached and apartment dwellings, many of which area rented.
- Low motor vehicle ownership.

These demographic characteristics reflect a younger, multicultural, affluent, and transient population, which is typical of inner metropolitan Melbourne locations such as West Footscray.

Table 1—Catchment area demographics, 2021 Census

Demographic characteristic (2021 Census)	Catchment	Melbourne	Index to Melbourne average
Persons and dwellings			
Usual resident population	18,006	4,917,750	-
Average household size [6][7]	2.33	2.60	89
Age group			
0-9	11%	12%	94
10-19	8%	12%	67
20-34	30%	23%	131
35-49	26%	21%	121
50-64	14%	17%	85
65+	11%	15%	70
Average age	37.2	38.8	96
Annual individual income [2]			
<$15,600	14%	20%	73
$15,600 - $41,700	27%	29%	96
$41,700 - $78,200	25%	26%	96
$78,200 - $104,200	15%	12%	128
>$104,200	19%	15%	128
Average individual income	$63,864	$56,877	112
Variation from Melbourne average	+12%	-	-
Annual household income [1][3][5]			
<$33,800	14%	15%	96
$33,800 - $78,200	22%	25%	89
$78,200 - $130,300	24%	25%	99
$130,300 - $182,400	16%	15%	106
>$182,400	22%	20%	114
Average household income	$126,726	$119,668	106
Variation from Melbourne average	+6%	-	-
Average household loan repayment	$27,767	$26,904	103
Average household rent payment	$19,790	$21,936	90
Country of birth [1]			
Australia	65%	63%	103
Vietnam	8%	2%	411
India	3%	5%	67
England	3%	3%	90
New Zealand	2%	2%	115
Philippines	1%	1%	105
Other	18%	24%	74
Occupied private dwelling tenure [1][4][5][6]			
Fully owned	21%	31%	68
Being purchased	35%	38%	92
Rented	44%	31%	142
Dwelling type [1][4][7]			
Separate house	57%	68%	83
Townhouse/semi-detached	20%	16%	120
Apartment	24%	16%	151
Household composition [4][5]			
Couples with children	26%	35%	74
Couples without children	26%	25%	105
One parent family	9%	11%	87
Lone person	30%	25%	118
Group	9%	4%	205
Motor vehicles per dwelling [1][5]			
None	14%	9%	165
One	50%	37%	135
Two	28%	37%	75
Three or more	8%	17%	45

Source: Deep End Services; Australian Bureau of Statistics

Notes:

[1] Excludes not stated

[2] 15 years and over and excludes not stated

[3] Excludes inadequately described and/or partially stated

[4] Excludes other

[5] Occupied private dwellings

[6] Includes visitor only households

[7] Excludes visitor only households

[8] Multi-response question; total sums to >100%

2.3 Population

The historical and forecast population of the catchment area is provided in Table 2, which shows that the catchment is estimated to have contained a population of 18,538 at June 2022.

The population had been growing at a rapid rate prior to the onset of COVID-19. However, this has been reversed during the past two years, a phenomenon witnessed across many areas of inner and middle suburbs of Melbourne as net overseas and interstate immigration flows to these areas were reversed during this period.

However, population growth within the catchment area is forecast to recover quickly in the next few years. This return to strong growth will be underscored by the return of overseas arrivals to Australia, particularly international students who are drawn to the two Victoria University campuses located to the immediate north-east and south-east of the catchment area. As shown in Figure 4, international students entering Australia have already accounted for a record 6% of overseas arrivals in the past 12 months.

Over the longer term, population projections have been guided by.id consulting's population forecasts (prepared in January 2021) for the suburbs within the City of Maribyrnong as well as by a review of recent new dwelling approvals within the catchment area.

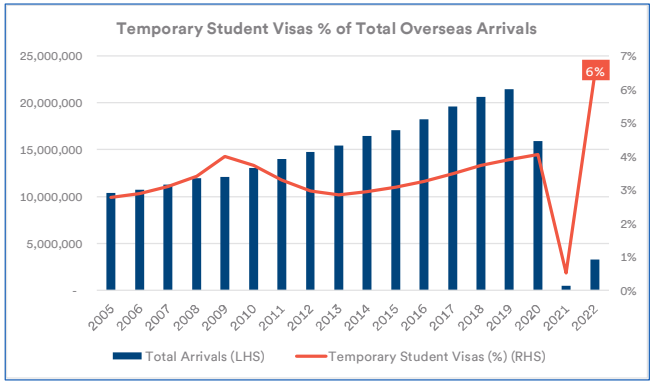
The .id consulting growth forecasts have, as a result, been scaled back but Table 2 shows that the catchment area population is anticipated to grow by more than 2,000 by 2027 (when the proposed West Footscray centre would be trading) and then by almost 2,000 again in the ensuing five years.

Table 2—Catchment area population, 2011-2037

Catchment area sector	2011	2016	2022	2027	2032	2037
Population						
Catchment area	16,040	18,775	18,538	20,751	22,713	24,181
Total	**16,040**	**18,775**	**18,538**	**20,751**	**22,713**	**24,181**
Population growth (No. per annum)						
Catchment area	-	547	-39	443	392	294
Total	**-**	**547**	**-39**	**443**	**392**	**294**
Population growth (% per annum)						
Catchment area	-	3.2%	-0.2%	2.3%	1.8%	1.3%
Total	**-**	**3.2%**	**-0.2%**	**2.3%**	**1.8%**	**1.3%**

Source: Deep End Services; ABS; .id consulting

Figure 4—Australian international arrivals – 2005 to 2022



Source: Australian Bureau of Statistics Overseas Arrivals and Departures, Jun-22

2.4 Retail spending

Total retail spending by catchment area residents is shown in Table 3 in constant 2022 dollars. Projections are based on combining population estimates and forecasts with per capita spending levels in the catchment area, aligned to retail spending product groups.

Annual retail spending by catchment area residents is forecast to increase by 2.3% per annum between 2022 and 2025 and by 3.0% per annum between 2025 and 2028.

Table 3—Catchment area retail spending, 2016-31 (constant $2022)

	Spending market ($m)						Average change (%pa)			
Spending category	**2016**	**2019**	**2022**	**2025**	**2028**	**2031**	**2019-22**	**2022-25**	**2025-28**	**2028-31**
Catchment area										
Food & Groceries	99.2	110.6	117.7	119.7	128.1	133.1	2.1%	0.6%	2.3%	1.3%
Other Food & Liquor	52.8	60.9	62.0	75.0	85.7	94.7	0.6%	6.6%	4.5%	3.4%
Non-Food & Services	105.5	113.7	121.0	127.0	138.2	145.3	2.1%	1.6%	2.9%	1.7%
Total	**257.5**	**285.2**	**300.6**	**321.7**	**351.9**	**373.1**	**1.8%**	**2.3%**	**3.0%**	**2.0%**

Source: Deep End Services; ABS; Market Data Systems; Deloitte Access Economics

2.5 Retail hierarchy

Maribyrnong City Council residents are currently served by several supermarket-based and higher order centres, mostly situated beyond the catchment.

The centres providing competitive influence on the proposed development are described below. Floorspace estimates for these centres, based on inspections and other published data, are provided within Table 4.

Catchment area

West Footscray NAC is the only defined activity centre within the catchment area.

The NAC consists of an elongated retail strip which extends approximately 650 metres along both sides of Barkly Street, spanning Liverpool St and Argyle Streets.

The West Footscray NAC is anchored by an IGA supermarket of approximately 2,050 sqm which also includes a liquor store of approximately 150 sqm. The store is in reasonable condition but is not a full line offer and does not offer convenient parking facilities (which comprise 39 spaces at the rear of the store, 19 spaces on Warleigh Road and approximately 130 spaces in a car park leased on the opposite side of Barkly Street).

The balance of the West Footscray NAC contains a mix of specialty shops offering culturally diverse cafés, restaurants, and service-based offerings.

Total retail floorspace for the West Footscray NAC is estimated to be 7,600 sqm.

Beyond catchment

The **Central West Major Activity Centre** ("MAC") is situated 1.7 km west of the subject site by road and consists of a sub-regional shopping centre (Central West Shopping Centre) and a business centre (Central West Business Park). Central West SC is anchored by a small Coles supermarket (2,503 sqm), an ALDI supermarket (1,470 sqm) and a Dimmeys discount department store ("DDS"). The centre has approximately twenty speciality tenancies internal to the mall and a mixture of large and small external tenancies facing onto the carpark.

The Central West Business Park is located adjacent to the south of the Central West SC. The business park is a multi-tenanted employment facility with a combination of warehouses, offices, and commercial buildings and it does not contain retail tenancies.

Total retail floorspace within the Central West MAC is estimated as 11,065 sqm.

The **Footscray Central Activities District** ("CAD") is located 2.0 km east of the West Footscray NAC and is one of two significant activity centres servicing the City of Maribyrnong LGA.

The Footscray CAD contains a diverse range of high street styled retail and service-based offerings along Barkly Street/Hopkins Street, Nicholson Street Mall and Paisley Street which represent the heart of the Footscray CBD.

The Footscray CAD is also home to the vibrant and multicultural Footscray Market and the Footscray Plaza neighbourhood shopping centre, anchored by a Coles supermarket (3,800sqm) and Kmart DDS.

At the time of survey, the Footscray Market supermarket tenancy (1,134 sqm) was vacant and the former Forges department store site spanning Albert Street was vacant and partially cleared.

Total retail floorspace within the Footscray CAD is estimated as 49,272 sqm.

The **Highpoint Principal Activity Centre** ("PAC") is situated 2.8 km north of the subject site by road and is the second significant activity centre located within Maribyrnong.

The PAC encompasses the Highpoint Shopping Centre as well as surrounding residential, large format retail ("LFR") and office uses.

Highpoint Shopping Centre is the largest shopping centre in Melbourne's west and contains almost 140,000 sqm of retail floorspace after a major refurbishment in 2019/20.

Following the announced exit of Target in 2021, Highpoint will incorporate a new Coles supermarket (4,000 sqm) in addition to an existing Woolworths supermarket (4,200 sqm). The centre will then also include a co-working office space and additional speciality retailers.

The LFR and industrial areas of the Highpoint PAC are located to the west and south-west of the Highpoint Shopping Centre. LFR tenants are located within the Highpoint Homemaker Centre and the Highpoint Lifestyle Centre as well as several other large format retail sites fronting Rosamond Road.

Total retail floorspace contained within the successful Highpoint PAC is estimated at 199,928 sqm.

Braybrook Shopping Centre NAC is a shopping centre situated 3.2 km north-west of the subject site by road.

The shopping centre has historically been anchored by a small Woolworths supermarket (2,712 sqm) and supported by twelve other retailers or serviced based offerings.

The Woolworths (which was formerly a Franklins Fresh supermarket) and BWS bottle shop closed in October 2021 and have since been replaced by a KFL supermarket operator.

The centre has large destination-based gym, physiotherapy, play centre and gift shop tenancies as well as smaller convenience-based food and services tenancies. Total retail floorspace is estimated as 4,957 sqm.

Yarraville Square NAC is located 3.5 km south of the subject site by road and is a compact neighbourhood shopping centre anchored by a Coles supermarket (3,500 sqm).

The supermarket is supported by a Liquorland and Soul Pattison Chemist as well as several food, deli, and grocery retail outlets.

The busy centre comprises 4,548 sqm of retail floorspace.

Yarraville NAC is a strip-based precinct located 4.0 km south of the West Footscray NAC by road.

The Yarraville NAC extends 400 metres along both sides of Anderson Street as well as 200 metres either side of the north-south intersecting Ballarat Street. Anderson Street is divided by Yarraville Station with the majority of the NAC's retail amenity situated to the eastern side of the railway line.

The centre contains a small Woolworths Metro supermarket (500 sqm) and a small IGA offering (320 sqm) as well as a mixture of eateries, retail services, the Sun Theatre and business services for residents.

Total retail floorspace within the Yarraville NAC is estimated as 8,590 sqm.

The **HomeCo Braybrook Shopping Centre** is located 4.5 km north-west of the subject site by road and occupies the former Masters Home Improvement site where operations ceased in December 2016.

The shopping centre comprises an internal mall with a full-line Coles supermarket (4,235 sqm), TK Maxx store and Chemist Warehouse as well external facing tenancies that include BCF, The Reject Shop, and several takeaway food offerings.

The centre's total retail floorspace is estimated to be 10,589 sqm.

Table 4—Estimated retail floorspace by tenant type, 2022

Activity Centre	Supermarket	Other food	Total food	Non-food & services	Total retail
WITHIN CATCHMENT					
Neighbourhood Activity Centre					
West Footscray	2,050	3,320	5,370	2,230	7,600
Total Catchment	**2,050**	**3,320**	**5,370**	**2,230**	**7,600**
BEYOND CATCHMENT					
Neighbourhood Activity Centre					
Braybrook SC	2,712	465	3,177	1,780	4,957
HomeCo Braybrook	4,235	688	4,923	5,666	10,589
Yarraville Square SC	3,500	866	4,366	182	4,548
Yarraville	820	4,920	5,740	2,850	8,590
Major Activity Centre					
Central West SC	3,785	1,880	5,665	5,400	11,065
Principal Activity Centre					
Highpoint SC	4,200	11,862	16,062	123,872	139,934
Highpoint Homemaker	0	0	0	21,198	21,198
Highpoint Lifestyle	0	150	150	6,862	7,012
Balance Highpoint	0	0	0	31,784	31,784
Highpoint PAC	4,200	12,012	16,212	183,716	199,928
Central Activities District					
Footscray CBD	770	13,625	14,395	17,700	32,095
Footscray Market	0	3,290	3,290	1,170	4,460
Footscray Plaza	3,800	550	4,350	8,367	12,717
Footscray CAD	4,570	17,465	22,035	27,237	49,272

Source: Deep End Services (May 2022); Property Council of Australia

2.6 Supermarket floorspace need

The average provision rate for supermarket floorspace across Melbourne is 326 sqm per 1,000 residents. For the purposes of this analysis, supermarkets are defined as being 400 sqm or larger, with smaller formats operating as convenience stores.

Based on a current catchment population of 18,538, there is a demand for 6,044 sqm of supermarket floorspace, if such floorspace was to be supplied at the Melbourne average.

The total floorspace of supermarkets within the catchment area is 2,050 sqm, representing a provision rate of 111 sqm per 1,000 people in 2022. This corresponds to an undersupply of 215 sqm of supermarket floorspace per person, or a total of -3,994 sqm, at the current time.

The addition of a new supermarket at the subject site in 2026/27 would help alleviate much of the significant undersupply of supermarket floorspace with the catchment area. However, continued population growth within the catchment area would see the undersupply increase at an average rate of 128 sqm per annum between 2027 and 2032 to reach -1,775 sqm by the end of this timeframe.

Table 5—Catchment area floorspace provision and need, 2022-2032

West Footscray supermarket catchment area	Unit	2022	2023	2024	2025	2026	2027	2032
Supermarket floorspace demand								
Population	no.	18,538	18,931	19,351	19,804	20,272	20,751	22,713
Melbourne average provision rate	sqm/1,000 pop	326	326	326	326	326	326	326
Catchment area demand for supermarket floorspace	sqm	6,044	6,171	6,308	6,456	6,609	6,765	7,404
Supermarket floorspace supply								
Existing								
IGA West Footscray	sqm	2,050	2,050	2,050	2,050	2,050	2,050	2,050
Total existing supermarket floorspace	sqm	2,050	2,050	2,050	2,050	2,050	2,050	2,050
Existing supermarket provision rate	sqm/1,000 pop	111	108	106	104	101	99	90
Proposed								
Woolworths West Footscray (2027)	sqm	-	-	-	-	-	3,579	3,579
Total existing and proposed	sqm	2,050	2,050	2,050	2,050	2,050	5,629	5,629
Existing & proposed supermarket provision rate	sqm/1,000 pop	111	108	106	104	101	271	248
Undersupply(-ve)/oversupply(+ve)	**sqm**	**-3,994**	**-4,121**	**-4,258**	**-4,406**	**-4,559**	**-1,136**	**-1,775**

Source: Deep End Services; ABS; .id consulting

2.7 Supermarket floorspace accessibility

A thematic representation of supermarket floorspace provision per resident at the SA1 geography level is shown in Figure 5.

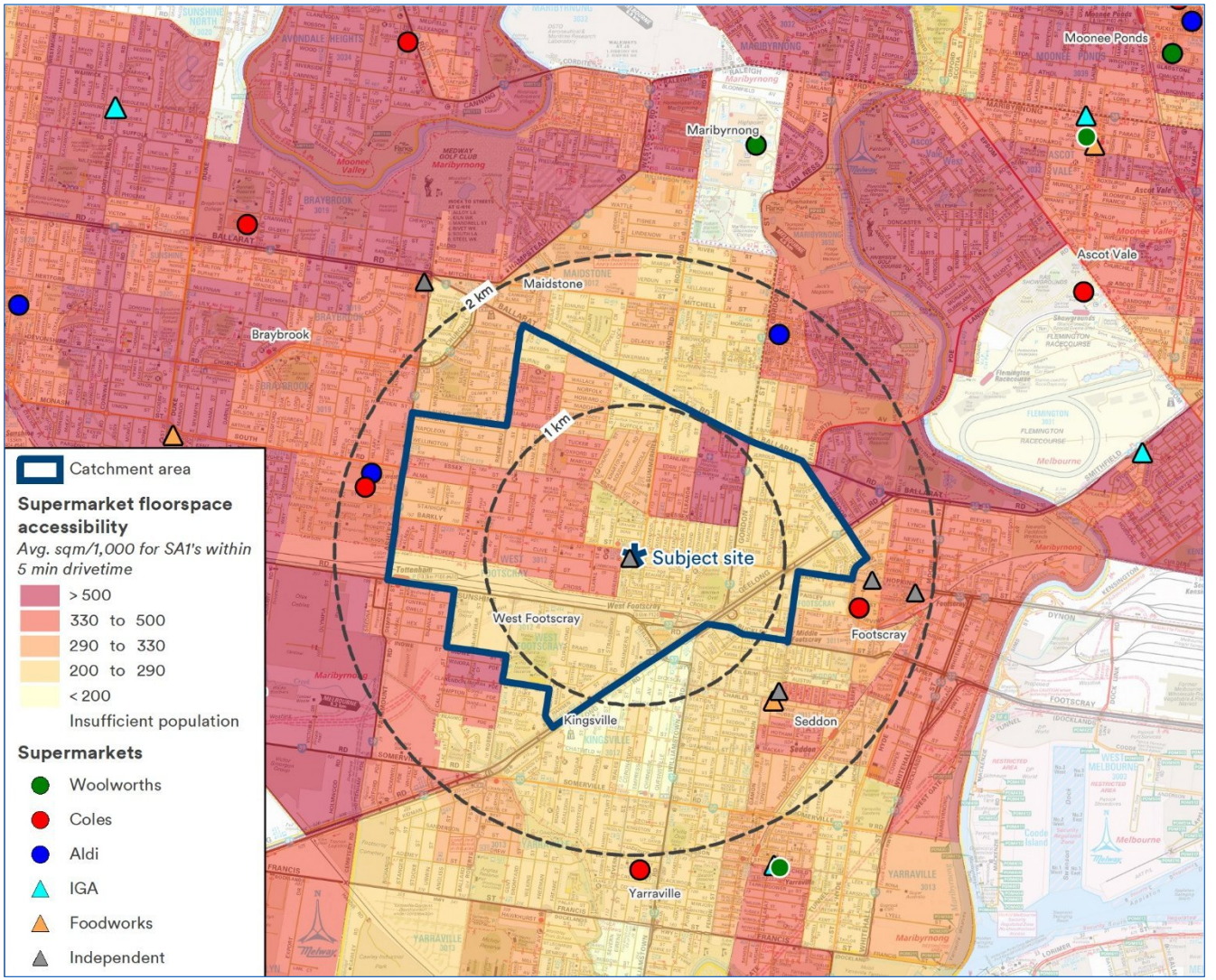
The calculations are based on the average population and amount of supermarket floorspace for SA1s within a 5-minute drive time from each individual SA1, with 5 minutes generally regarded as a limit to the amount of time which residents expect to travel to access a supermarket.

As shown in Figure 5, local access to supermarket floorspace is strong in the areas to the northeast (Maribyrnong, Moonee Ponds and Ascot Vale) and west (Braybrook) but these are beyond the catchment area.

However, the catchment area and suburbs to the north (Maidstone) and south (Kingsville, Seddon and Yarraville) are located within a section of inner western Melbourne with notably low supermarket floorspace provision.

The local supermarket accessibility for residents within West Footscray is particularly poor (and particularly with respect to full-line supermarkets which are typically regarded as being 3,000 sqm or larger).

Figure 5—Supermarket floorspace accessibility



Source: Deep End Services; Ausway; MapInfo

2.8 Catchment area – current and future floorspace sales

A summary of current retail floorspace by broad product group (Food, Liquor & Grocery, Non-Food & Services and Total) is shown in Table 6 for centres within and beyond the catchment area. The table also includes the current estimated sales and trading levels for the identified activity centres.

Table 7 then provides base case sales for these centres in 2027 (i.e. without the proposed development on the subject site). These forecasts take into account anticipated growth in the local spending market along with the occupation of 400 sqm of currently vacant floorspace within the West Footscray NAC, the redevelopment of Highpoint Shopping Centre (incorporating a new Coles supermarket) and the re-opening of the Footscray Market supermarket.

The base case sales provide the platform against which the sales impacts of the proposed development on the subject site in West Footscray can be forecast.

Table 6—Existing floorspace and sales estimates by broad product group, 2022

	Floorspace (sqm)			Estimated sales ($m)			Trading level ($/sqm)		
Activity Centre	FL&G	NF & Services	Total	FL&G	NF & Services	Total	FL&G	NF & Services	Total
WITHIN CATCHMENT									
Neighbourhood Activity Centre									
West Footscray	5,370	2,230	7,600	32.8	13.4	46.2	$6,102	$6,000	$6,072
Total Catchment	**5,370**	**2,230**	**7,600**	**32.8**	**13.4**	**46.2**	**$6,102**	**$6,000**	**$6,072**
BEYOND CATCHMENT									
Neighbourhood Activity Centre									
Braybrook SC	3,177	1,780	4,957	21.1	12.5	33.5	$6,637	$7,000	$6,767
HomeCo Braybrook	4,923	5,666	10,589	47.5	36.8	84.3	$9,649	$6,500	$7,964
Yarraville Square SC	4,366	182	4,548	72.1	1.2	73.3	$16,522	$6,500	$16,121
Yarraville Village	5,740	2,850	8,590	33.4	18.5	52.0	$5,825	$6,500	$6,049
Major Activity Centre									
Central West SC	5,665	5,400	11,065	59.1	24.3	83.4	$10,426	$4,500	$7,534
Principal Activity Centre (PAC)									
Highpoint SC	16,062	123,872	139,934	216.3	867.1	1,083.4	$13,467	$7,000	$7,742
Highpoint Homemaker	0	21,198	21,198	0.0	84.8	84.8		$4,000	$4,000
Highpoint Lifestyle	150	6,862	7,012	1.5	27.4	28.9	$10,000	$4,000	$4,128
Balance Highpoint	0	31,784	31,784	0.0	127.1	127.1		$4,000	$4,000
Highpoint PAC	16,212	183,716	199,928	217.8	1,106.5	1,324.3	$13,435	$6,023	$6,624
Central Activities District (CAD)									
Footscray CBD	14,395	17,700	32,095	53.3	79.7	132.9	$3,701	$4,500	$4,142
Footscray Market	3,290	1,170	4,460	10.7	5.3	16.0	$3,250	$4,500	$3,578
Footscray Plaza	4,350	8,367	12,717	48.0	37.7	85.6	$11,029	$4,500	$6,733
Footscray CAD	22,035	27,237	49,272	112.0	122.6	234.5	$17,980	$13,500	$14,453

Table 7—Future floorspace and sales estimates by broad product group, base case, 2027

	Floorspace (sqm)			Estimated sales ($m)			Trading level ($/sqm)		
Activity Centre	FL&G	NF & Services	Total	FL&G	NF & Services	Total	FL&G	NF & Services	Total
WITHIN CATCHMENT									
Neighbourhood Activity Centre									
West Footscray	5,570	2,430	8,000	40.2	16.2	56.4	$7,216	$6,669	$7,050
Total Catchment	**5,570**	**2,430**	**8,000**	**40.2**	**16.2**	**56.4**	**$7,216**	**$6,669**	**$7,050**
BEYOND CATCHMENT									
Neighbourhood Activity Centre									
Braybrook SC	3,127	1,780	4,907	22.8	13.8	36.7	$7,298	$7,781	$7,473
HomeCo Braybrook	4,923	5,666	10,589	51.8	40.9	92.8	$10,532	$7,225	$8,762
Yarraville Square SC	4,366	182	4,548	78.4	1.3	79.7	$17,947	$7,225	$17,518
Yarraville Village	5,740	2,850	8,590	42.0	20.6	62.6	$7,314	$7,225	$7,284
Major Activity Centre									
Central West SC	5,665	5,400	11,065	64.9	27.0	91.9	$11,455	$5,002	$8,306
Principal Activity Centre (PAC)									
Highpoint SC	21,880	123,872	145,752	354.7	890.5	1,245.2	$16,210	$7,189	$8,543
Highpoint Homemaker	0	21,198	21,198	0.0	94.2	94.2		$4,446	$4,446
Highpoint Lifestyle	150	6,862	7,012	2.0	30.5	32.5	$13,254	$4,446	$4,634
Balance Highpoint	0	31,784	31,784	0.0	141.3	141.3		$4,446	$4,446
Highpoint PAC	22,030	183,716	205,746	356.7	1,156.6	1,513.2	$16,190	$6,295	$7,355
Central Activities District (CAD)									
Footscray CBD	14,005	17,700	31,705	66.6	87.3	153.9	$4,752	$4,934	$4,854
Footscray Market	4,424	1,170	5,594	14.2	5.9	20.0	$3,203	$5,002	$3,580
Footscray Plaza	4,350	8,367	12,717	51.4	41.8	93.2	$11,808	$5,002	$7,330
Footscray CAD	22,779	27,237	50,016	132.1	135.0	267.1	$19,764	$14,937	$15,763

Source: Deep End Services

3

Economic impact assessment

3.1 Sales forecast

Supermarket

The sales potential for the proposed Woolworths at West Footscray in its first potential financial year of trading (Y/E June 2027) is assessed as $34.0 million in constant 2022 dollars (as set out in Table 8).

The Woolworths sales forecast incorporates:

- An achievable market share of 19% of catchment area Food & Grocery spending;
- The expectation that 25% of sales will be sourced from residents living beyond the catchment area; and
- The assumption that Non-Food & Grocery sales will represent 7% of the store's total sales as is typical for a Woolworths supermarket.

The forecast sales would be equivalent to a trading level of $9,501 per sqm for the Woolworths supermarket which would be a solid result for the first year of trading for the store, further underlining the need for the full-line supermarket.

Other tenants

The proposed Fabcot development at West Footscray would also include nine specialty tenancies with a total of 716 sqm of floorspace. Forecast sales for the associated retail specialty tenants are $6.8 million in 2027. This would represent a strong trading figure of $9,457 per sqm reflecting, in part, that the liquor tenancy would occupy approximately 20% of the specialty floorspace and would trade at approximately $13,600 per sqm.

Total centre

The resulting sales forecasts for the proposed West Footscray centre are presented within Table 9 and show total sales of $40.8 million, comprising Food sales of $36.4 million and Non-Food & Services sales of $4.4 million in 2027.

Table 8—Forecast Woolworths West Footscray sales, 2027 (constant $2022)

Sales source	F&G spending ($m)	Market share (%)	Turnover ($m)	Sales distribution (%)
Catchment area	124.8	19.0%	23.7	
Beyond catchment area			7.9	25.0%
Total F&G sales			**31.6**	
Non-F&G sales				7.0%
Total			**34.0**	

Source: Deep End Services

Table 9—Forecast West Footscray total centre sales, 2027 (constant $2022)

Tenancy	Floorspace (sqm GLA)	Sales ($m)	Trading level ($/sqm)	Sales by category ($m) Food	NF & Services	Total retail
Woolworths	3,579	34.0	9,501	31.6	2.4	34.0
Other tenants	716	6.8	9,457	4.8	2.0	6.8
Total	**4,295**	**40.8**	**9,493**	**36.4**	**4.4**	**40.8**

Source: Deep End Services

3.2 Trading impacts

The proposed new Woolworths-anchored centre at West Footscray centre would attract sales from a variety of centres operating within and beyond the catchment area and the trading impacts resulting from the proposed development are presented in Table 10 on the next page.

At an overall level, the trading performance of the West Footscray NAC would be improved by the proposed Woolworths development (i.e. from $7,050 per sqm pre impact as per Table 7 to $7,561 per sqm post impact as per Table 10). Total sales in the West Footscray NAC would also increase by 65% with the addition of the proposed Woolworths development (i.e. from $56.4 million to $93.0 million).

The highest impact in percentage terms would be on the existing West Footscray NAC (i.e. -7.5% for existing retail) but this impact would be ameliorated by the reduction in spending escaping the catchment to other centres and result in increased sales for retailers not in direct competition with Woolworths within the NAC.

Other assessed impacts would range down from -7.3% at the Central West MAC (which contains two supermarkets) to just -0.4% at the Highpoint PAC (with an average one-off impact of -1.6% for the relevant centres).

Overall, the majority of the impacts will be experienced by successful supermarkets and will be unlikely to cause these businesses to cease trading as a result and/or harm the ongoing operations of the centres within which they are located.

Table 10—Forecast West Footscray development trading impacts, 2027

Activity Centre	Total retail floorspace (sqm)	Base case forecast sales ($m)	Forecast sales with West Footscray WW ($m)	Forecast sales with West Footscray WW ($/sqm)	Impact ($m)	Impact (%)
WITHIN CATCHMENT						
Neighbourhood Activity Centre						
West Footscray	8,000	56.4	52.2	$6,524	-4.2	-7.5%
West Footscray Woolworths (prop)	4,295	-	40.8	$9,493	40.8	-
Total incl West Footscray WW	12,295	-	93.0	$7,561	-	-
BEYOND CATCHMENT						
Neighbourhood Activity Centre						
Braybrook SC	4,907	36.7	34.8	$7,099	-1.8	-5.0%
HomeCo Braybrook	10,589	92.8	88.7	$8,377	-4.1	-4.4%
Yarraville Square SC	4,548	79.7	75.3	$16,559	-4.4	-5.5%
Yarraville	8,590	62.6	61.7	$7,179	-0.9	-1.4%
Major Activity Centre						
Central West SC	11,065	91.9	85.2	$7,703	-6.7	-7.3%
Principal Activity Centre (PAC)						
Highpoint SC	136,334	1,245.2	1,238.8		-6.4	-0.5%
Highpoint Homemaker	21,198	94.2	94.2		0.0	0.0%
Highpoint Lifestyle	7,012	32.5	32.5		0.0	0.0%
Balance Highpoint	31,784	141.3	141.3		0.0	0.0%
Highpoint PAC	196,328	1,513.2	1,506.8	$7,675	-6.4	-0.4%
Central Activities District (CAD)						
Footscray CAD	49,776	267.1	260.6	$5,236	-6.5	-2.4%
Total identified excl West Footscray WW	**293,803**	**2,200.4**	**2,206.1**	**$7,509**	**-35.0**	**-1.6%**
Other centres					**-5.8**	**-**
Total					**-40.8**	**-**

Source: Deep End Services

3.3 Positive aspects

Employment benefits

The cost for the construction of the proposed development (including Woolworths, specialties, level one tenancies and basement parking) is estimated at $45 million over a 15-month period.

This construction phase would support 175 full-time equivalent jobs ("FTE") during the 15-month timeframe, with an additional 155 indirect FTE jobs supported through multiplier effects in the local economy during this time.

As set out in Table 11, a total of 154 ongoing direct FTE jobs would be created as a result of the operation of the retail aspects of the proposed West Footscray development, with an additional 96 FTE jobs supported through multiplier effects in the local economy.

Table 11—Ongoing employment creation, proposed West Footscray Fabcot development

Tenancy type	Floorspace (sqm)	FTE direct job creation per 100 sqm	Direct FTE jobs	Indirect FTE jobs	Total FTE jobs
Woolworths	3,579	2.2	80	50	130
Specialty retail & BWS	716	3.0	22	14	36
Gym	384	1.4	5	2	7
Medical	425	5.0	21	15	36
Childcare (110 places)	1,485	na	26	15	41
Job creation			**154**	**96**	**250**

Source: Deep End Services, ABS

The majority of the 250 FTE jobs created as a result of the proposed development would be filled by local residents, resulting in a direct positive benefit to the local economy.

Retail job opportunities are important for community members such as students and semi-retirees who are seeking to work close to home with flexible hours.

Other benefits

The proposed West Footscray Fabcot development would also:

- Enhance the range, choice and convenience of supermarket and specialty shop goods available to local residents;
- Provide car parking in a safe and efficient on-site facility
- Improve price competition;
- Provide a range of complementary retail and non-retail services including modern commercial accommodation);
- Utilise a large site which is no longer contributing to the West Footscray NAC; and
- Increase rates and taxes payable to authorities.

4

Net community benefit

4.1 Summary of opinion

There is currently a significant undersupply of supermarket floorspace within the inner western suburbs of Melbourne which are centred on West Footscray but include Kingsville and Maidstone.

The proposed development will introduce a full-line Woolworths supermarket within the West Footscray NAC which will largely offset the undersupply while also introducing a small number of specialty tenants, a gym, medical centre and commercial office floorspace. These are all uses which will enhance the appeal of the West Footscray NAC and will do so within a setting with convenient access and parking which will help to retain escape spending and encourage cross-visitation to other existing tenants within the NAC.

Forecast one-off impacts on centres due to the proposed development would all be within reasonable bounds and would not upset the efficient and ongoing functioning of these centres.

On the other hand, the proposed development will provide 175 direct FTE jobs and 155 indirect FTE local jobs during the construction phase as well 250 ongoing direct and indirect FTE jobs in the local economy after completion.

Additional economic benefits would arise due to the activation of a vacant site and associated increase in rates, taxes and charges.

As a consequence, it is assessed that the proposed Fabcot West Footscray development will result in a significant positive community benefit.

GALBRAITH & Associates

Tree Consultants & Contractors
Tel (03) 9888 5214

7 Oct 2022

Hugh Doyle
Regional Development Manager
Corporate Property
Woolworths Ltd.

Dear Sir,

re: 495-507 Barkly Street, Footscray

Introduction
A mixed use development which includes a supermarket and upper floor child care facility is proposed for the site of 495-507 Barkly Street, Footscray. An aerial view of the property is provided on page 2, with the actual site boundary de-lineated by yellow line. A number of trees are located within and close to this site. Galbraith and Associates has been requested by Fabcot Pty Ltd to report on these trees. Along with a general description of the treed nature of the site, each is described in terms of species type, origin, size, condition and, in the case of the site trees, worth for retention. Tree protection zones according to the Australian Standard approach are provided for the higher worth site trees plus any neighbouring trees in close proximity. A discussion of the likely impact of the current proposal is provided, along with any recommendations where necessary.

The approximate location of the base of the trunk of each tree has been estimated, numbered and marked in by hand on the aerial image of the site on page 2. Each tree is described in the accompanying excel table of data.

The design drawing upon which I base my assumptions is No DA17, the ground floor plan, dated the 23/Aug/22 by I2C.

Planning Overlays and Trees
There are no requirements to apply for a permit to remove trees on the site, unless they are regarded as self-sown native to Victoria and over ten years of age, as per clause 52.17 of the Planning Scheme. There is no local law necessitating that a permit be applied for.

The only tree native to Victoria within the site is a Sweet Pittosporum (tree 25), a species which is regarded as a seriously invasive environmental weed in the metropolitan area.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The Trees- General
There are 36 live trees on the site, which are up to about 40 years old. Five Queen Palms (Syagrus romanzoffiana, native to Brazil) constitute the tallest trees, with most being nine or ten metres high (height measured to top of crown). They are in fair health only, evidenced by their low number of healthy fronds.

Other trees on the site are small/smallish specimens of about ten species, most of which are exotic (non-Australian). They include Evergreen Alder (Alnus acuminata, trees 40 and 42), Variegated Pittosporum (Pittosporum eugenioides 'Variegatum) - trees 10 to 12, Photinia 'Robusta' (trees 7 to 9, 45) and New Zealand Cabbage Tree (Cordyline australis, trees 6, 21, 23). In most cases, they have been crudely lopped in the past at between one metre and one and a half metres above ground and then clipped intermittently, producing a stunted, shrubby result. A mature Umbrella Tree (Schefflera actinophylla, tree 25) is vulnerable to splitting apart. Weed species, namely Tree Privet, Desert Ash and Sweet Pittosporum account for more than a quarter of the trees.

No tree on the site has any worth for retention of any significance. There are no trees on the site which are native to the local area.

There are a number of trees (46-61) located close to the boundary but within the adjoining property to the north. They are all small and planted. Trees 1-4 are young small street trees.

Impact of the Proposal

Site Trees It is proposed to remove every tree on the site.

Neighbouring Trees The only neighbouring trees potentially impacted by any works on the site are located just to the north of the boundary. According to the DA 17 plan there is an approximately 1.6m wide buffer zone within the subject site adjacent to the northern boundary where it appears that no works are proposed. This is a more than adequate buffer to be confident that none of the neighbouring trees will be impacted by the proposal, given that the neighbouring trees are small with TPZs of < 2m radius and SRZs of < 1.5m radius from the trunk centres.

Street Trees Of the four street trees near the subject site, the northernmost (tree 4) will have to be removed. It is a recently planted Chinese Elm of 3m height.

Conclusion
The trees within the site are small commonly occurring exotic and Australian native species. They are of low significance. They are all proposed to be removed however no permits are required for their removal. The neighbouring trees in close proximity to the site are adjacent to the northern boundary. These are also small and young and will not be impacted so long as a buffer of at least 1.5m width (2m is currently proposed) is maintained intact during the construction process opposite these trees. The northernmost street tree opposite the subject site, a 3m high recently planted Chinese Elm, will have to be removed.

Notes on Terminology
In order to understand the column headings of the tables of data, I have provided the following explanations:

DBH diameter of trunk over bark at breast height In a number of cases where the tree has forked into multiple trunks below breast height (1.3-1.5m) the diameter is measured below the fork and an estimate is made for the single trunk equivalent at breast height, or else figures for each of the individual stems can be given.

HxS This is the estimated height (H) of the tree and its average crown spread (S).

SULE Safe useful life expectancy in years. Taken in the context that the area is to be developed for residential use, and that sensible distances are maintained between the buildings and the trees, this is the estimate of time that the tree will continue to provide useful amenity without imposing an onerous financial burden in order to maintain relative safety, and avoid excessive nuisance.

Worthiness of Retention (WOR):
The worth for retention of a tree is based on the assumption that the site is to be re-developed, and that there is the opportunity for new tree planting. It is based on a number of factors. These factors are:

1. structure, health, form and safe useful life expectancy,
2. size, prominence in the landscape,
3. species rarity,
4. whether indigenous,
5. whether an environmental weed.
6. importance for habitat of native wildlife
7. whether of historical or cultural interest

Any tree with a WOR rating of 3 or less should be seriously considered for removal before development begins because it is dead, nearly dead or dangerous, a weed, is causing or is likely to cause a severe nuisance in the near future, or just of very little significance and readily replaceable with new plantings. Trees rated 4-6 are of some significance. Some of these trees may respond to treatments such as formative pruning, removal of dead wood, weight reduction pruning etc. Trees rated 7 or higher are of high significance (the higher the ranking the more so), primarily because of their good health, structure, form, prominence in the landscape and SULE, although all they still may need substantial works done on them as already detailed, if they are to be retained.

Tree Protection Zone (TPZ) According to the Australian Standard AS 4970-2009 'Protection of Trees on Building Sites', the TPZ is the principal means of protecting trees on development sites. It is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable.' The radius of the TPZ is calculated by multiplying the DBH by 12. The radius is measured from the centre of the stem at ground level. An area of 10% of the TPZ is deemed acceptable to violate if 10% of the ***area*** of the TPZ is made up in other directions. *Thus if encroachment is from one side only, encroachment to as close as approximately 8.3 times the DBH (slightly over 2/3 the listed TPZ radius) is permissible according to the Standard.*

Where the tree has more than one trunk, the TPZ is deduced by taking the square root of the sum of the squares of each of the DBHs, and multiplying this figure by 12

The TPZs as determined by the AS 4970-2009 approach should be construed as a rough guide. Many factors such as the type of encroachment on the TPZ, species tolerance, age, tree height, presence of spiral grain, soil type, soil depth, tree lean, the existence of onsite structures or root directional impediments, level of wind exposure, irrigation and ongoing tree care and maintenance are each highly influential on the size and success of the TPZ estimation.

Structural Root Zone
According to the Aus Std. AS 4970:2009, the structural root zone is the area of the root plate required for a tree`s stability. In order to calculate the indicative radius of such a zone from the trunk centre, according to the Aus Std., one uses the following formula: SRZ radius is $(D \times 50)^{0.42} \times 0.64$, where D is the trunk diameter in metres taken from just above the root buttress. The minimum indicative SRZ radius is 1.5m for any tree, irrespective of how small. A graph is provided in the Aust Std, with a curve depicted relating the SRZ to trunk diameter. Unfortunately, the calculated figures do not match those derived from the graph. The Aust Std. does not mention from where this formula is taken although acknowledges the publication 'Mattheck, C. & Breloer, H. (1994) *The Body Language of Trees* HMSO Publications' in the preface and bibliography. The figures derived from the graph for the indicative SRZs are far greater than those implied from the curve of 95% fit for the results from studies of upturned root plates of windblown and winched over German trees (see Mattheck, C. & Breloer, H. (1994). Furthermore the figures derived from the graph for the indicative SRZs are far greater than what one calculates them to be, using the formula provided by the Standard i.e. $(D \times 50)^{0.42} \times 0.64$. The calculated figures according to the Aust Std. are considerably greater for small and large trunks than those of Mattheck & Breloer.

In reality, the radii calculated whether by graph or using the formula, are much larger than necessary, except in cases such as where the soils are very shallow or where the structural root development is unidirectional or highly asymmetric for some reason, and the excavation is to be within the zone of the roots. **The structural stability generally depends far more on what proportion of the circumference of the tree is to be excavated than the actual distance of excavation from a tree, and this is often not taken into account quite when using the SRZ.**

Tree Origin Categories
Each tree has been classified as to whether it is indigenous (**I**), native to Victoria (**V**), native to Australia (**A**), exotic (**E**) or an environmental weed (**W**).

An indigenous species (**I**) is one that is known to grow naturally in the local area, even if the individual tree has been planted and is from a seed source or provenance foreign to the area.

A species classified **V** is one which has a part or all, even if very small, of its natural range within Victoria, although it may occur outside the state as well. It does not however occur naturally in the local area.

A species classified **A** is native elsewhere in Australia than Victoria. It does not occur naturally in the local area.

A species classified **E** has its natural range occurring outside Australia.

A species classified **W** is a seriously invasive environmental weed.

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Acoustic Assessment

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3	20/10/2022	20220751.1/2010A/R3/ET	ET		ET

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1 INTRODUCTION

Acoustic Logic Pty Ltd (AL) has been engaged by Fabcot Pty Ltd to undertake an acoustic assessment of the proposed mixed-use development containing a full-line supermarket, associated specialty retail and upper-level commercial uses located at 497-507 Barkly Street, Footscray. Our review has been based on the following documentation.

Table 1 – Referenced Documents

Company	Document Reference	Date
i2C	Project 2021-363 Drawing no. DA01 – DA47	14 October 2022

2 SITE DESCRIPTION

The subject development is located at 497-507 Barkly Street, Footscray. It is bounded by Barkly Street to the north, 3-storey residential dwellings to the east and south and existing commercial use to the west.

The proposed development is to incorporate two levels of basement car park; loading dock, a full-line supermarket and retail tenancies on the ground level; and childcare, medical, office and recreation tenancies on the first level.

Figure 1 below details the subject site and surrounding environment.

Figure 1: Subject Site and Surrounding Environment (Source: Google Maps™)

2.1 LOCAL NOISE SOURCES

Inspection onsite indicated that the dominant noise source at the subject site is traffic movement associated with Barkly Street.

3 ENVIRONMENTAL NOISE DESCRIPTORS

Environmental noise constantly varies in level, due to fluctuations in local noise sources including traffic and rail. Accordingly, a 15-minute measurement interval is normally utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In the case of environmental noise three principle measurement parameters are used, namely L_{10}, L_{90} and L_{eq}.

The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals.

The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced by the source.

Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source depends on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period. L_{eq} is important in the assessment of traffic and rail noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of industrial noise.

The L_1 parameter (or the noise level exceeded for 1% of the time) is used during the night period to assess potential sleep arousal effects due to transient noise sources.

4 NOISE LEVEL MEASUREMENTS

4.1 MEASUREMENT LOCATIONS AND DATE OF MEASUREMENTS

Measurement locations are presented in Figure 1 and detailed below.

- **Measurement Location 1:** An un-attended noise monitor was installed to measure background noise levels at the subject site with the microphone located approximately 1.5 metres above grade and in free field. The measurement was conducted from 24 – 30 June 2022.

4.2 MEASUREMENT EQUIPMENT

Unattended noise monitoring was conducted using a Rion NL-42. The monitor was programmed to store 15-minute statistical noise levels throughout the measurement period. Equipment was calibrated at the beginning and the end of the measurement using a Rion NC-75 calibrator; no significant drift was detected. All measurements were taken on A-weighted, fast response mode.

4.3 MEASUREMENT RESULTS

The measurement results are presented in the tables below.

Table 2 – Unattended Background Noise Measurements

Measurement Location	Period	Time	Measured Background Noise Levels $L_{90,period}$ dB(A)[1]
Measurement Location 1 in Figure 1	Day	7am – 6pm (Mon – Sat)	44
	Evening	6pm – 10pm (Mon – Sat) 7am – 10pm (Sun)	43
	Night	10pm – 7am	37

Note 1 - Measured background levels determined generally in accordance with clauses 39-51 of EPA Publication 1826.4

5 ASSESSMENT CRITERIA

The following criteria are applicable for noise from the loading dock and mechanical plant and equipment serving the proposed development.

5.1 EPA 1826.4 – NOISE EMISSION CRITERIA

To address the noise emission from the proposed development to the nearby noise sensitive residential receivers, noise emission has been assessed against EPA publication 1826.4 "Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues".

EPA Publication 1826.4 details the methodology to be used in assessing environmental noise emissions such that protection of residential amenity may be preserved. EPA 1826.4 is a statutory instrument that is required to be complied with by both private individuals and public and private sector organisations. EPA 1826.4 Part 1 (Noise limits – urban area method) includes both Schedule A and B that provide procedures to measure noise from premises and to determine noise emission limits respectively. To determine the assessment criteria both the 'Zoning' level and background noise levels are required to determine if the background noise level is low, neutral, or high.

5.1.1 Zoning Level

The 'Zoning' level is determined by the Influencing Factor (IF) and is calculated using the method in clauses 7 to 15 of EPA Publication 1826.4. The IF is calculated from the proportion of industrial and commercial land around noise sensitive areas. Review of the surrounding area indicates an IF of approximately **0.28** which results in the Zoning limits detailed in the table below.

Table 3 - Zoning Levels

Period	Zoning Level dB(A)
Day time	55
Evening	49
Night-time	44

5.1.2 EPA Noise Protocol – Part 1

Table 4 below details the assessment criteria based on both the zoning levels and measured background noise levels.

Table 4 – Noise Limits

Period	Zoning limit	Measured Background Noise Levels	Classification	Project Noise Limits dB(A) L_{eq}
Day Monday – Saturday (7am – 6pm)	55	44	Neutral	**55**
Evening Monday – Saturday (6pm – 10pm) Sunday (7am – 10pm)	49	43	Neutral	**49**
Night Monday – Friday (10pm – 7am)	44	37	Neutral	**44**

6 ASSESSMENT

6.1 TRUCK MOVEMENT AND LOADING DOCK ACTIVITIES

Assessment of the truck movement entering and exiting the loading dock and the activities within the back-of-house / loading dock has been conducted to ensure compliance with EPA Publication 1826.4 is achieved in combination with other noise sources at the nearest noise sensitive residential receivers identified in Figure 1. The following sound power level of delivery vehicles driving at 5km/h and loading dock operation have been used in the assessment, which has been based on measurements conducted by Acoustic Logic of similar operations.

Table 5 – Sound Power Level

Type of Operation	Sound Power Level
Heavy Rigid Truck	95dB(A)
Van	86dB(A)
Loading Dock Operation	85 dB(A)

The following is proposed:

- A maximum of 1 large truck deliveries will occur in a half hour time period.
- Loading / unloading activities will only occur inside the loading dock.
- Potentially most impacted nearby residential dwellings from the truck entering / exiting will be the existing dwellings to the east of the site facing Barkly Street
- All deliveries shall occur between 7am and 10pm.
- Trucks are to have vacated the loading dock by 10pm.

Based on the above, the following shall be implemented.

- The loading dock shall be enclosed on the east, south, and west with a solid wall as well as a solid roof as indicated in Appendix 1 – Loading Dock Treatment
- If the loading dock is required to be mechanically ventilated, the fan shall be acoustically treated with internally lined ductwork or attenuators to ensure compliance with EPA Publication 1826.4 is achieved.
- The underside of the roof within the loading dock area shall be lined with absorptive material such as 40mm Envirospray or approved equivalent by a suitable qualified acoustic consultant.

Provided the acoustic treatment recommendations above are implemented, we confirm that the delivery truck movement and operation of the loading dock / back-of-house will achieve compliance with EPA Publication 1826.4 in combination with other noise sources at the nearest noise sensitive residential receivers.

6.2 VEHICLE MOVEMENT

Assessment of vehicles entering and exiting the carpark of the proposed development has been conducted to ensure compliance with EPA Publication 1826.4 is achieved in combination with other noise sources at the nearest noise sensitive residential receivers identified in Figure 1. The following sound power level has been used in the assessment, which has been based on measurements conducted by AL of similar operations.

Table 6 – Sound Power Level

Type of Operation	Sound Power Level
Car Engine at 10km/h	86 dB(A)

The following assumptions have been made:

- Numbers of vehicle movements have been assumed based on advice from the traffic engineer as indicated below:

Table 7 – Assumed Traffic Volumes

Period	Time Assessed	Vehicle Movements[1]
Day Period (7am-6pm)	Day Peak Hour (5pm-6pm)	411
Evening Period (6pm-10pm)	Evening Peak Hour (6pm-7pm)	218
Night Period (10pm-7am)	Night Peak Hour (6am-7am)	69

Note 1 – A vehicle movement is considered a car entering or leaving the carpark

- Potentially most impacted nearby residential dwellings from the truck entering / exiting will be the existing dwellings to the east of the site facing Barkly Street
- The loading dock shall be enclosed on the east, south, and west with a solid wall as well as a solid roof as indicated in Appendix 1 – Loading Dock Treatment
- The underside of the roof within the loading dock area shall be lined with absorptive material such as 40mm Envirospray or approved equivalent by a suitable qualified acoustic consultant.

6.3 PLANT AND EQUIPMENT SERVING THE DEVELOPMENT

To ensure that noise emissions from plant and equipment serving the development do not impact adversely on the amenity of nearby noise sensitive residential receivers, noise emissions from the plant and equipment shall comply with EPA Publication 1826.4.

To ensure amenity for future residents and nearby noise sensitive receivers is preserved, a review of the mechanical plant and equipment is to be conducted during the detailed design stage of the project by a suitably qualified acoustic consultant to ensure compliance with EPA Publication 1826.4. Compliance with the nominated criteria will be achieved by the use of standard acoustic treatment such as acoustic screens, internally lined ductwork, acoustic attenuators, variable speed drives and anti-vibration mounts.

Major rooftop mechanical plant areas serving the supermarket is to be designed to incorporate a solid imperforate acoustic screen and/or alternative treatment as approved by a suitably qualified acoustic consultant to ensure compliance with EPA Publication 1826.4

6.4 PREDICTED NOISE LEVELS AT NEAREST NOISE SENSITIVE RECIEVERS

Noise levels from truck deliveries, loading dock operation and vehicle movement associated with the basement carpark have been predicted at noise sensitive receiver locations using SoundPlan™ modelling software implementing the ISO 9613-2:1996 *"Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation"* noise propagation Standard. Noise levels presented are the façade incidence levels and do not include façade reflection.

The predicated noise levels at the windows of the residential dwelling located at 491A Barkly Street are indicated in the table below. This represents the most impacted dwelling. Compliance at this location indicates compliance at other residential dwellings in the vicinity of site.

Table 8 – Predicted Noise Levels at 491A Barkly Street

Location	Period	Predicated Noise Levels	EPA Publication 1826.4 Criteria	Complies
491A Barkly Street at North facing windows[1]	Day	≤52	55	Yes
	Evening	≤48	49	Yes
	Night	≤42	44	Yes

Note 1 – This is considered as potentially the most impacted location. Compliance at this location will ensure compliance elsewhere.

6.5 CHILDCARE

There are currently no specific statutory requirements to assess noise emissions with respect to childcare centres from noise associated with children playing in outdoor play areas. This specific issue has been addressed in the VCAT matter of PHHH Investments Pty Ltd v Bayside City Council (VCAT Reference No P2294/2014 with Permit Application No. 2014/130/1) which has been adopted for this assessment.

The above matter proposed a childcare centre in a Neighbourhood Residential Zone near existing residential premises. The centre proposed to cater for up to 102 children. In determining the matter Member Fong concluded that "I adopt AAAC's approach to noise and the criterion of 10 dB above background noise and adoption of permit conditions with regard to noise attenuation measures and management plan".

Based on the above the following criteria would apply based on the measured background noise level. It is assumed that the outdoor area will be used between 7:00am and 6:00pm on Monday to Friday.

Table 9 – Environmental Noise Criteria – Children in Outdoor Play Areas

Time	Measured Background $L_{90,period}$ dB(A)[1]	Criteria L_{eq} dB(A)	Project Noise Limits L_{eq} dB(A)
Day Period 7am – 6pm (Mon – Fri)	44	L_{90} +10	**54**

Note 1 – Background noise measurement is based on the background noise level presented in Table 2.

The use of the childcare centre is to be managed to ensure compliance with the above nominated criteria at all nearby residential receivers.

7 CONCLUSION

This report details our acoustic assessment of the proposed commercial development to be located at 497-507 Barkly Street, Footscray.

Review of loading dock operation, mechanical plant and equipment serving the development, and vehicle movement (entering and exiting the car park) have been conducted to ensure compliance with EPA Publication 1826.4 is achieved at the identified nearby noise sensitive residential receivers.

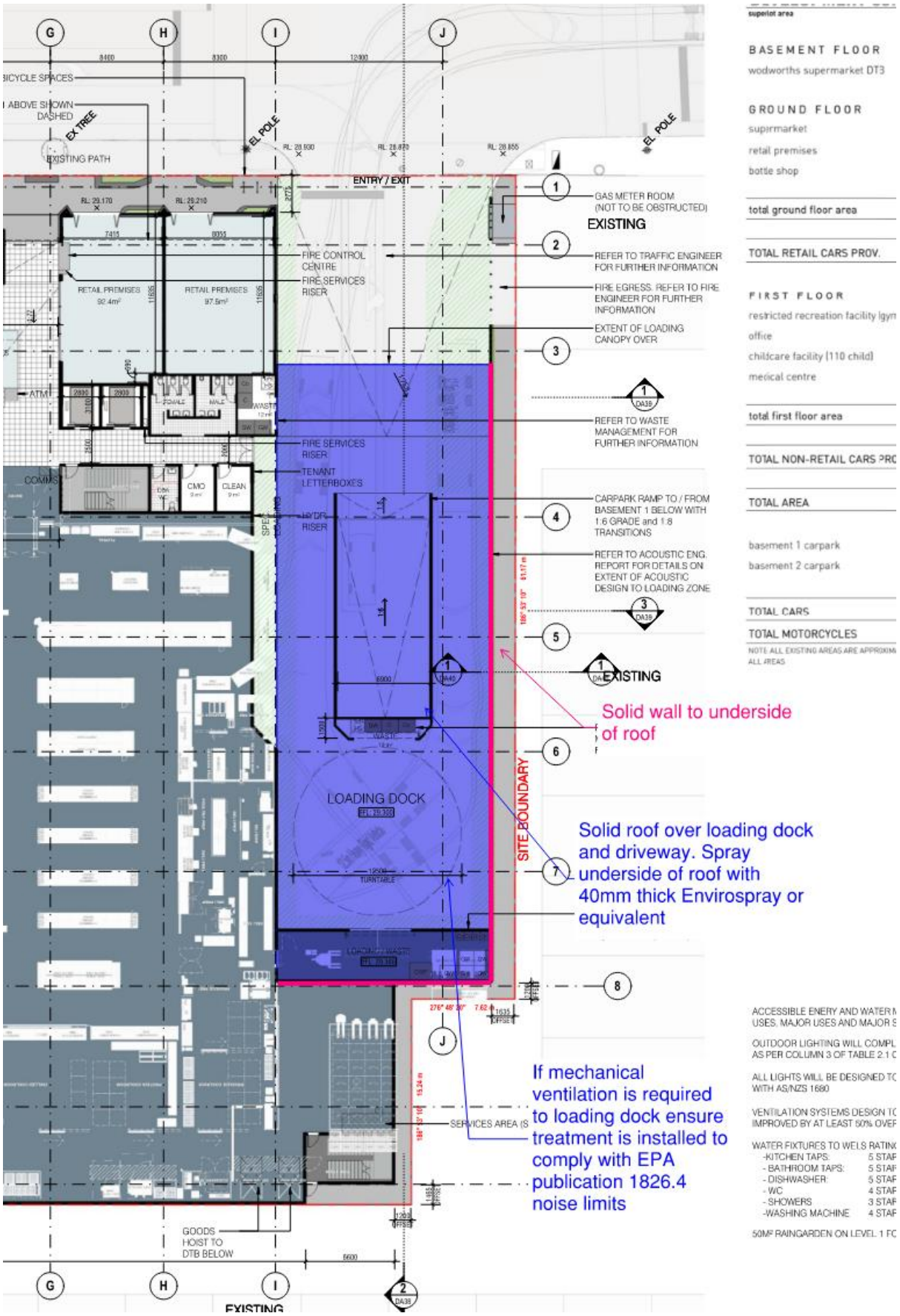
Provided the acoustic treatment recommendations are implemented, compliance with the proposed criteria will be achieved.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
Edward Thatcher

APPENDIX 1 - LOADING DOCK TREATMENT



IGS INTEGRATED GROUP SERVICES

Value | Innovation | Trust

ESD Services
Sustainable Management Plan

495-507 Barkly Street
Footscray Vic 3011

Project No: 22111
Date: 20/10/2022

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Document Control

Version	Date	Issue	Author		Reviewer	
00	10/08/2022	Issue for Review	Li Huan	LH	Slav Angelovski	SA
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03	20/10/2022	Issue for Review	Li Huan	LH	Slav Angelovski	SA

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1. Executive Summary

The proposed two-storey commercial building development at 495-507 Barkly Street, Footscray been designed to meet the City of Maribyrnong Sustainable Design Assessment in the Planning Process and National Construction Code (NCC 2019) Section J energy efficiency requirements.

The ESD strategy for the proposed development has incorporated to use of both NCC 2019 Section J, and Green Star Buildings v1 rating tool. The development has targeted all the following sustainable initiatives as detailed required within the Green Buildings v1 rating tool.

Category	Credit	Benchmark
Responsible	Responsible construction	The site must have an environmental management plan. The builder will have an environmental management system and minimum 80% of construction and demolition waste must be recycled. Sustainability training is provided to construction workers.
	Verification & handover	The building will be commissioned and tuned. Appropriate metering will be present.
	Operational waste	The building will have appropriate spaces for waste management and an appropriately sized loading dock.
Healthy	Clean air	The ventilation system will have appropriate filtration. Point source pollutants must be exhausted directly outside (printers, kitchen). The building will be provided with at least 50% improvement of outside air.
	Light quality	Glare will be managed. Light fittings will be of good quality. Lighting levels will be appropriate with daylight provide to occupied spaces.
	Acoustic Comfort	Internal noise levels from services and the outside is limited through an acoustic comfort strategy.
	Exposure to toxins	All the paints, adhesives, sealants, and carpets will be low VOC. Engineering wood will be low formaldehyde. There is no lead, asbestos or PCBs in the building.
Resilient	Climate change resilience	The project will carry out a pre-screening assessment and delineated design choices to mitigate these.
Positive	Upfront carbon emissions	The building will achieve minimum 10% less upfront carbon emissions compared to a standard building from materials.
	Energy use	The building will achieve at least a 10% lower energy consumption than one built to the National Construction Code 2019.
	Energy source	The building will provide a Zero Carbon Action Plan.
	Water use	The building will achieve at least a 15% reduction in potable water usage when compared to a reference building.
Places	Movement and place	There will be showers, lockers and change rooms provided within the building.

People	Inclusive construction practices	There will be provisions for providing gender appropriate facilities and personal protective equipment.
Nature	Impacts to nature	Minimise the negative ecological impact to the site.

On top of targeting the sustainable initiatives, a further 15+ points are targeted to a 4-Star Green Star equivalent design potential which presents 'Best Practice' Sustainable Design.

Category	**Points Available**	**Points Targeted**
Responsible	17	4
Healthy	14	4
Resilient	8	4
Positive	30	9
Places	8	0
People	9	1
Nature	14	0
Leadership	-	-
Total Core Points	**100**	**22**

Based on the level of information available at this stage of the design process, the commercial building development at 495-507 Barkly Street, Footscray demonstrates 'Best Practice in ESD and meets the City of Maribyrnong Sustainable Design Assessment in the Planning Process (SDAPP).

2. Introduction

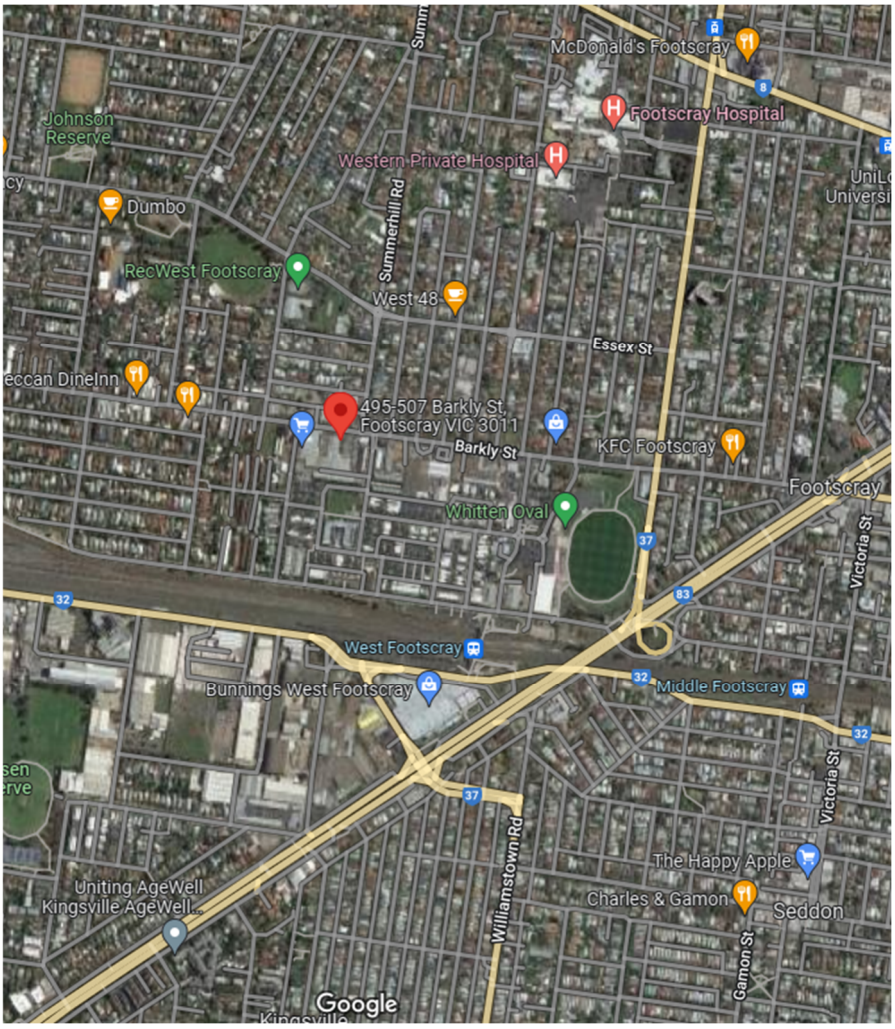
The Sustainable Management Plan has been prepared to summarise the environmental objectives and initiatives incorporated into the design of the proposed commercial development and demonstrates how these components incorporate environmentally sustainable design initiatives in accordance with the City of Maribyrnong Sustainable Design Assessment in the Planning Process objectives.

The ESD initiatives proposed for this development are based on:

- Architectural Drawing Package issued on 14/10/2022 for Town Planning prepared by i2C Architects.

The Site

The proposed two-storey commercial development is located at 495-507 Barkly Street, Footscray with convenient access to the gardens, entertainment and recreational facilities, hospitals, schools and public transport. There are train stations located within 500m walking distance from the development and the development has achieved a ranking of 'Very Walkable' via Walkscore.com



The development is located within the City of Maribyrnong and consists of:

- Basement 1 and 2: Basement Carpark and BOH;
- Ground Floor: Woolworths Supermarket, Retail and Bottle Shop; and
- Level 1: Gym, Office, Childcare and Medical Tenancies
- Roof: Roof Plant

3. City of Maribyrnong Sustainable Design Assessment in the Planning Process (SDAPP)

The City of Maribyrnong uses the Sustainable Design Assessment in the Planning Process (SDAPP) program developed by the Municipal Association of Victoria (MAV). The SDAPP provides clear guidance on sustainable goals by identifying 10 key sustainable building categories and lists the following commonly used ESD rating tools.

		Residential			Non-residential				
		Extension	Single	Multiple	Office	Retail	Food & Beverage	Public Building	Recreational Facility
Mandatory	NatHERS	√	√	√					
	NABERS				√	√			
Requirement depends on Responsible Authority	BESS	√	√	√	√	√	√	√	
	STORM	√	√	√	√	√	√	√	√
	MUSIC		√	√	√	√	√	√	√
	Green Star			√	√	√	√	√	√

Each Sustainable Rating tool's coverage of the SDAPP are tabulated as:

	Indoor Environmental Quality	Energy	Water	Stormwater	Materials	Transport	Waste	Ecology	Innovation	Management	Emissions
NatHERS		√									
NABERS	√	√	√				√				
BESS	√	√	√	√		√	√	√	√	√	
STORM				√							
MUSIC				√							
Green Star	√	√	√		√	√	√	√	√	√	√

Green Star rating tool is commonly used rating tool for SDAPP. It is an internationally recognised rating system setting the standard for healthy, resilient, positive buildings and places and 4-star Green Star equivalent design represents a 'Best Practice' level of the SDAPP Program.

3.1 Incorporation of Environmentally Sustainable Design Objectives

The proposed commercial development has incorporated the SDAPP through the use of the Green Star Buildings V1 rating tool to assess the sustainable initiatives to a 4-Star Green Star design potential to City of Maribyrnong Sustainability Design Objectives.

4. Sustainable Design Initiatives – 4 Star Green Star

A 4-Star Green Star equivalent sustainable design is targeted under Green Star Buildings V1 to form the base level of sustainable performance for the proposed commercial development.

This section is focusing on implementing Green Star Buildings V1 environmental categories throughout the design and construction process to a 4-Star Green Star equivalent design which represents 'Best Practice' sustainable design.

A summary of the targeted Green Star credits of the proposed development is tabulated below.

Green Star Category	Targeted Score
Responsible	4
Healthy	4
Resilient	4
Positive	9
Places	0
People	1
Nature	0
Leadership	0
Overall score	**22 (15^{+} for a 4-Star Green Star design)**

A minimum of 15+ points will be targeted to a 4-Star Green Star equivalent sustainable design. An alternative assemblage of the Green Star targeted credits is considerable on condition that the performance outcome meets the City of Maribyrnong SDAPP guidelines. A Green Star Scorecard is enclosed as Appendix A for reference.

4.1 Responsible

4.1.1 Industry Development

The development will facilitate partnership, collaboration, and data sharing to contribute to industry transformation through the following strategies:

- A principal participant in the design team is an ESD accredited professional engaged to provide sustainability advice throughout the project. IGS have been appointed to this role on the project;
- Disclose the costs related to sustainable building practices;
- Market the sustainability achievements for the building.

4.1.2 Responsible Construction

Improved environmental and social outcomes will be achieved through responsible construction practices for the development. The following sustainable initiatives will be implemented to meet the credit requirements.

- An environmental management system (ISO14001 accredited) will be implemented to manage the development's environmental impact on site;
- An environmental management plan covering the scope of the construction activities will be incorporated;
- At least 90% of the construction and demolition waste will be diverted from landfill complying with the Green Star Construction and Demolition Waste Report Criteria;
- The head contractor will provides training on the sustainability targets of the building to 95% of all contractors and subcontractors present on site for at least three days.

4.1.3 Verification and Handover

The building will be designed to deliver high level of performance in terms of operation by incorporating the following initiatives:

- Appropriate metering and monitoring systems will ensure optimum building management;
- The building will address set environmental performance targets being commissioned, tuned, designed and tested airtightness;
- Operations and maintenance information will be provided to the building facilities maintenance team along with a Building logbook. Building User Guide will be provided to building users on how to mostly efficiently use the building.
- An independent commissioning agent will be appointed to provide verification to the design, planning, commissioning and tuning processes.
- Soft landings approach involving the future facilities management team will be used in the project.

4.1.4 Operational Waste

The building will have appropriate spaces for waste management and an appropriately sized loading dock.

4.1.5 Responsible Finishes

Responsibly manufactured products with a Responsible Products Value of at least 7 will be used for 40% of the building's internal finishes (by cost).

4.2 Healthy

4.2.1 Clean Air

The ventilation system is to be designed to mitigate the entry of outdoor pollutants, for ease of maintenance and cleaning; and will be cleaned prior to occupation and use. Design will comply with ASHRAE 62.1-2003 with regard to minimum separation distances between pollution sources and outdoor air intakes.

It is proposed that outside air rates be improved by at least 50% over the minimum requirements detailed in AS1668.2 for the commercial development. This is intended to improve the indoor air quality and assist the productivity and wellbeing of the building occupants.

It is proposed all commercial exhausts will be ducted to outside of the building. Woolworth Supermarket, specialty Retail, Liquor and Level 1 commercial tenancies will have dedicated exhaust system.

4.2.2 Light Quality

All lights within the project are designed to be flicker free and accurately address the perception of colour in the space and all lighting levels and quality will comply with AS/NZS 1680.

The project team will ensure Glare from light sources will be limited to meet the credit requirements.

The 495-507 Barkly Street development is to provide high levels of natural daylight to the occupied areas. This can be in the form of external windows.

4.2.3 Acoustic Comfort

An Acoustic Comfort Strategy describing how the building and acoustic design aims to achieve acoustic comfort to building users will be prepared.

4.2.4 Exposure to Toxins

The materials used in the construction of the development will be specifically selected to minimise off-gassing of Volatile Organic Compounds (VOC) and formaldehyde, which can impact on indoor air quality. At least 95% of internally applied paints, adhesives, sealants (by volume) and carpets (by area) must meet stipulated ‘Total Volatile Organic Compounds (TVOC) Limits’. Material specifications will include:

- All paints, wall covering, adhesives and sealants used in the construction will be low-VOC paints;
- Carpets and flooring will be specially selected to be low-VOC; and
- It is proposed that only low formaldehyde composite wood products will be utilised.

Low Volatile Organic Compound (VOC) paints, adhesive and sealant to be used in the development, especially more than 50% internal paints (by volume) to be selected with ultra-low VOC content of lower than 5g/L.

Product Type Category	Max TVOC Content (g/l of ready-to-use product)
General purpose adhesives	50
Interior wall and ceiling paint, all sheen levels	16
Trim, varnishes and wood stains	75
Primers, sealers and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	250

Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

Note: more than 50% internal paints (by volume) with VOC content of lower than 5g/L.

Low-TVOC Carpets to be selected for the development.

Compliance Option	Test Protocol	Limit
ASTM D5116	ASTM D5116 - Total VOC limit	0.5mg/m^2 per hour
	ASTM D5116 - 4-PC (4-Phenylcyclohexene)	0.05mg/m^2 per hour
ISO 16000 / EN 13419	ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m^2 per hour
ISO 10580 / ISO/TC 219 (Document N238)	ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5mg/m^2 per hour

Low formaldehyde wood products to be used in the development.

Test protocol	Emission limit/ Unit of Measurement
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1.0mg/L
AS/NZS 1859.1:2004 – Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.5mg/L
AS/NZS 1859.2:2004 – MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.0mg/L
AS/NZS 4357.4 – Laminated Veneer Lumber (LVL)	≤1.0mg/L
Japanese Agricultural Standard MAFF Notification NO.701 Appendix Clause 3 (11) - LVL	≤1.0mg/L
JIS A 5908:2003 – Particle Board and Plywood, with use of testing procedure JISA 1460	≤1.0mg/L
JIS A 5905:2003 – MDF, with use of testing procedure JIS A 1460	≤1.0mg/L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1mg/m^{2}hr
ASTM D5116 (applicable to high pressure laminated and compact laminates)	≤0.1mg/m^{2}hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1mg/m^{2}hr (at 3 days)
ASTM D6007	≤0.12mg/m^3
ASTM E1333	≤0.12mg/m^3
EN 717-1 (also known as DIN EN 717-1)	≤0.12mg/m^3
EN 717-2 (also known as DIN EN 717-2)	≤3.5mg/m^{3}hr

A comprehensive hazardous materials survey will be carried out on any existing buildings or structures on the project site, in accordance with the relevant Environmental and Work Health and Safety (WHS) legislation to ensure no banned or highly toxic materials are used in the development. Where the survey identified asbestos, lead, or PCBs in any existing buildings or structures, the materials must be stabilised or removed and disposed of in accordance with best practice guidelines.

On site verification will be undertaken to verify that the TVOC concentration is below 0.27ppm and formaldehyde levels are below 0.02ppm.

4.3 Resilient

4.3.1 Climate Change Resilience

The project team will complete the climate change pre-screening checklist and advice the building owner the development's exposure to climate change risks.

4.3.2 Heat Resilience

At least 75% of the whole site will incorporate of one or a combination of strategies that reduce the heat island effect.

4.3.3 Grid Resilience

A minimum 99kW-e Solar PV system is proposed to reduce peak electricity demand by at least 10%. A demand response strategy will be developed to show how at least 10% of the building annual peak electricity demand will reduced without affecting occupant amenities such as comfort, lighting and movement.

The development will be designed and constructed to demonstrate passive design solutions.

4.4 Positive

4.4.1 Upfront Carbon Emissions

The building's upfront carbon emissions will be at least 10% less than those of the reference building.

4.4.2 Energy Use

The building's energy use will be at least 30% less than the reference building as defined under NCC 2019 Section J. A preliminary Façade assessment has been carried out and the following are recommended for building thermal performance.

Total Construction	Proposed Building
External Wall & Spandrels	Minimum R value R2.0
Floors (Conditioned to unconditioned spaces or slab-on-ground)	Minimum R value R2.0
Roof and Ceiling Construction	Minimum R value R4.0
External Glazing Systems	External Glazed Doors and Windows U-value ≤ 2.4; $SHGC_w$ ≤ 0.23

Refer to Appendix B – NCC2019 Façade Assessment Report for details.

Heating, Ventilation and Airconditioning (HVAC)

Energy efficient air conditioning system is proposed to the commercial development with full load EER at least 10% better than the NCC 2019 Section J minimum requirement.

The carpark spaces are proposed to install CO sensors to monitor and control the operation of the car park exhaust fan speed.

Energy Efficient Lighting Design

Energy efficient LED light fittings are proposed for the whole development as much as practicable throughout the development. Adequate lighting control system that is easy to use, to monitor, and control. Motion detectors and / or timer control are proposed in common area, services plant, lifts and external spaces. Carpark lighting, where reasonably safe to do so, also will be fitted with motion sensors or timers.

Moreover, a smart lighting system allows for remote access, programming, control, and troubleshooting.

- Energy efficient LED light fittings to the whole development as much as practicable throughout the development; and
- Lighting power density to be below 10% of NCC 2019 Section J6.2 requirement.

Central Domestic Hot Water System

Centralised electric heat pump type domestic hot water system is proposed for the whole development with minimum COP of above 3.5.

Vertical Transport / Lifts

Passenger lifts designs are to be equipped with variable voltage Variable Voltage Variable Frequency (VVVF) drives and standby modes when lifts are idle.

Onsite Renewable Energy

Minimum 99kW-e Solar photovoltaic panels will be installed on the roof to provide the green power supply to the main switchboard which is then consumed to power as a fraction of the building electrical load.

4.4.3 Energy Source

The project team will develop a Zero Carbon Action Plan for the development which will be signed off by the building owner or developer. The Zero Carbon Action Plan will address all the requirements outlined in the credit and will be included in the operational documents for the building.

All electricity accounted for will be sourced from renewable sources through the purchase of Green Power.

4.4.4 Water Use

To minimise the amenity water consumption and discharge to the municipal sewerage system, water efficient fixtures are to be selected with the minimum WELS rating stated below:

- Taps - 5 Star WELS Rating
- WCs - 4 Star WELS Rating
- Urinals - 5 Star WELS Rating
- Showers - 3 Star WELS Rating (≤ 7.0 L/min)
- Dishwasher - 5 Star WELS Rating
- Washing Machines – 4 Star WELS Rating

Rainwater tank with a capacity of 30kL will be provided for rainwater collection and reuse for all toilet flushing and landscaping irrigation.

The water efficient fixtures and appliances along with the rainwater tank will ensure the potable water consumption to be reduced by at least 15% when compared to the reference building.

4.5 Places

4.5.1 Movement and Place

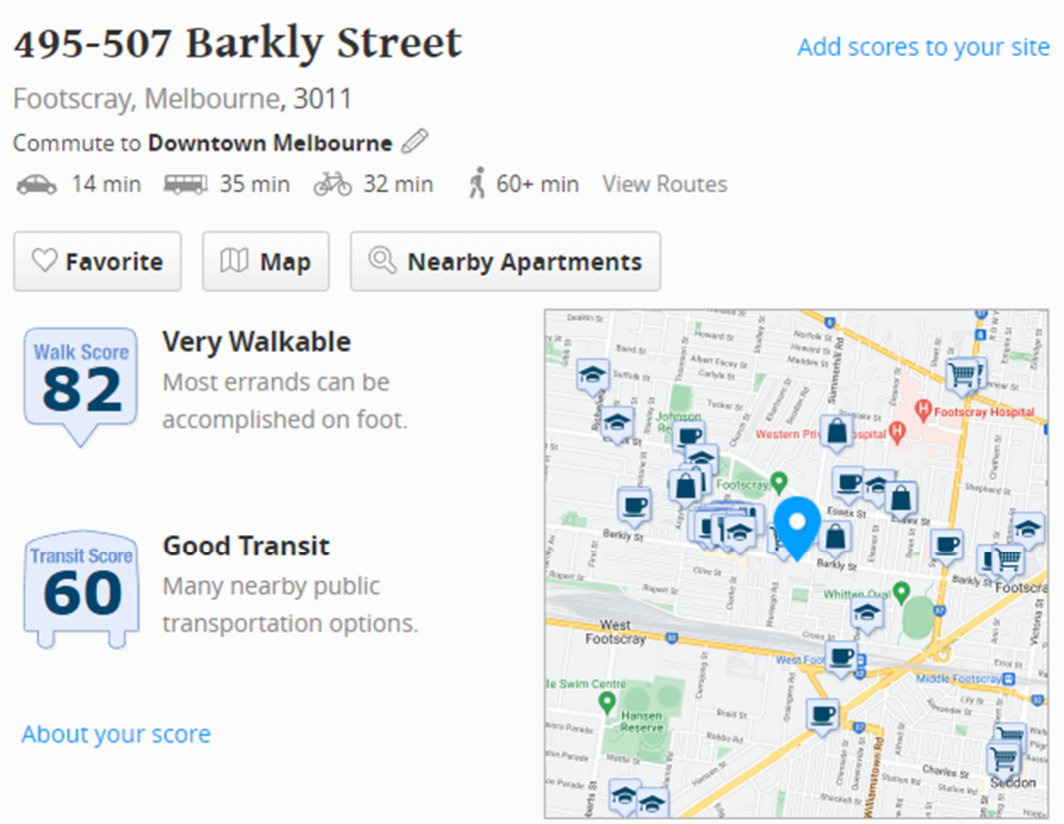
The building will consist of the shower facilities of appropriate design encouraging its use. The showers will be at least 900mm x 900mm. The number of showers will be incorporated according to the table below:

Occupants	No of Showers
0-49	1 Unisex
50-99	2
100-200	4
200+	Additional 1 per 200 occupants above 200

One locker for every eight regular building occupants or staff will be provided. These lockers will be in a secure location in the changing rooms.

Access to these facilities will be well lit between entryway to bike parking, all amenities and lift lobbies and main access points to the building.

The site of the proposed commercial development achieves a ranking of 82 which is 'Very Walkable' via Walkscore.com



4.6 People

4.6.1 Inclusive Construction Practices

During building construction, the head contractor will provide gender inclusive facilities and protective equipment. The head contractor will also implement policies on-site to increase awareness and reduces instances of discrimination, racism, and bullying.

A Needs Analysis of potential site workers and sub-contractors will be carried out to identify appropriate actions. The policies and programs implemented will be relevant to all construction workers on site for the entire duration of the construction.

Physical and Mental Health Programs covering at least five of the following topics will be implemented. These programs will cover at least 80% of the workforce that have attended the site for more than three days from commencement on site to practical completion.

An evaluation report of the program's effectiveness will be provided to the client and sub-contractors consisting with the following information:

- Information on the programs or initiatives that were delivered, including information on dates, attendance, and available languages;
- A review on whether the programs delivered the intended outcomes including recommendations for improving future delivery of these programs.

4.7 Nature

4.7.1 Impacts to Nature

The development will not take place at a site with a high ecological value.

All outdoor lighting within the project boundary will comply with AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting. Compliance will be achieved as per column 3 of Table 2.1 of AS/NZS 4282:2019.

5. Targeted Green Star Buildings Rating

With inclusion of all ESD initiatives summarised above, the proposed design will achieve and overall 15+ point to a 4-Star Green Star equivalent design and demonstrates 'Best Practice' sustainable design.

Category	Points Available	Points Targeted
Responsible	17	4
Healthy	14	4
Resilient	8	4
Positive	30	9
Places	8	0
People	9	1
Nature	14	0
Leadership	-	-
Total Core Points	**100**	**22**

6 Conclusion

This report provides a summary of sustainable design features, which are integrated into the design of the proposed development, in order to meet the objectives of the City of Maribyrnong Sustainable Design Assessment in the Planning Process (SDAPP).

In terms of the building performance, the proposed development will be designed to achieve:

- 4-Star Green Star equivalent design under the current Green Star Buildings rating tool Version 1

Therefore, the proposed development has been designed to meet the objectives of City of Maribyrnong SDAPP as addressed and the project team will ensure the performance outcomes proposed in this Sustainable Management Plan be implemented prior to occupancy at no cost to the City of Maribyrnong and be to the satisfaction of the Responsible Authority.

Appendix A – Green Star Scorecard

Submission planner

Summary

Registering from / certified	2020 onwards		
Climate Positive Pathway targeted	No	**Targeted Green Star rating**	4 Star
Minimum expectations met	Yes	**Core points targeted**	22
Credit Achievement points targeted	19	**Leadership points targeted**	0
Exceptional Performance points targeted	3	**Total points targeted**	22

	Credit	Minimum Expectation	Credit Achievement	Exceptional Performance	Total points available	Targeted performance level	Total points targeted
Responsible					**17**		
1	Industry Development		1		**1**	Credit Achievement	**1**
2	Responsible Construction	•	1		**1**	Credit Achievement	**1**
3	Verification and Handover	•	1		**1**	Credit Achievement	**1**
4	Operational Waste	•			**0**	Minimum Expectation	•
5	Responsible Procurement		1		**1**		**0**
6	Responsible Structure		3	2	**5**		**0**
7	Responsible Envelope		2	2	**4**		**0**
8	Responsible Systems		1	1	**2**		**0**
9	Responsible Finishes		1	1	**2**	Credit Achievement	**1**
						Total	**4**
Healthy					**14**		
10	Clean Air	•	2		**2**	Minimum Expectation	•
11	Light Quality	•	2	2	**4**	Credit Achievement	**2**
12	Acoustic Comfort	•	2		**2**	Minimum Expectation	•
13	Exposure to Toxins	•	2		**2**	Credit Achievement	**2**
14	Amenity and Comfort		2		**2**		**0**
15	Connection to Nature		1	1	**2**		**0**
						Total	**4**
Resilient					**8**		
16	Climate Change Resilience	•	1		**1**	Minimum Expectation	•
17	Operations Resilience		2		**2**		**0**
18	Community Resilience		1		**1**		**0**
19	Heat Resilience		1		**1**	Credit Achievement	**1**
20	Grid Resilience		3		**3**	Credit Achievement	**3**
						Total	**4**
Positive					**30**		
21	Upfront Carbon Emissions	•	3	3	**6**	Minimum Expectation	•
22	Energy Use	•	3	3	**6**	Exceptional Performance	**6**
23	Energy Source	•	3	3	**6**	Credit Achievement	**3**
24	Other Carbon Emissions		2	2	**4**		**0**
25	Water Use	•	3	3	**6**	Minimum Expectation	•
26	Life Cycle Impacts		2		**2**		**0**
						Total	**9**
Places					**8**		
27	Movement and Place	•	3		**3**	Minimum Expectation	•
28	Enjoyable Places		2		**2**		**0**
29	Contribution to Place		2		**2**		**0**
30	Culture, Heritage and Identity		1		**1**		**0**
						Total	**0**
People					**9**		

31	Inclusive Construction Practices	•	1		**1**	Credit Achievement	**1**
32	Indigenous Inclusion		2		**2**		**0**
33	Procurement and Workforce Inclusion		2	1	**3**		**0**
34	Design for Inclusion		2	1	**3**		**0**
						Total	**1**
	Nature				**14**		
35	Impacts to Nature	•	2		**2**	Minimum Expectation	•
36	Biodiversity Enhancement		2	2	**4**		**0**
37	Nature Connectivity		2		**2**		**0**
38	Nature Stewardship		2		**2**		**0**
39	Waterway Protection		2	2	**4**		**0**
						Total	**0**
	Leadership				**0**		
40	Market Transformation				**0**		**0**
41	Leadership Challenges				**0**		**0**
						Total	**0**

Appendix B – NCC2019 Façade Assessment Report

Façade

Report

Calculator

Project Summary

Date
20/10/2022

Name
IGS ESD Team

Company
Integrated Group Services

Position
ESD Consultant

Building Name / Address
7-Eleven
61, Archer St, Shepparton

Building State
VIC

Climate Zone
Climate Zone 4 - Hot dry summer, cool winter

Building Classification
Class 6 - department stores, shopping centres

Storeys Above Ground
1

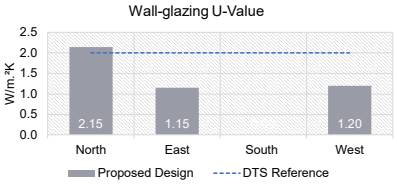
Tool Version
1.2 (June 2020)

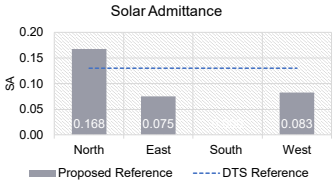
The summary below provides an overview of where compliance has been achieved for Specification J1.5a - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Apects).

Compliant Solution =
Non-Compliant Solution =

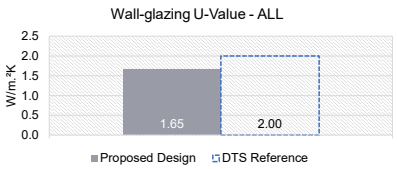
	Method 1				Method 2
	North	East	South	West	All
Wall-glazing U-Value (W/m².K)	2.15	1.15		1.20	1.65
Solar Admittance	0.17	0.08		0.08	
AC Energy Value					175

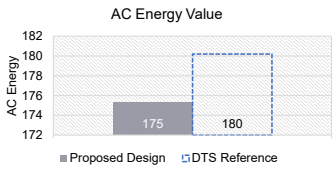
Method 1





Method 2





Project Details

	North	East	South	West
Glazing Area (m²)	314.72	75.48		57.25
Glazing to Façade Ratio	87%	34%		37%
Glazing References	GL-W1 GL-W2 GL-W3 GL-W4 GL-W5 GL-W6 GL-W7 GL-W8	GL-W1 GL-W3 GL-W4 GL-W5 GL-W6 GL-W7		GL-W1 GL-W3 GL-W4
Glazing System Types	Fixed Sliding Door	Fixed		Fixed
Glass Types	IGS Glazing 1 IGS Glazing 2 IGS Glazing 3 IGS Glazing 4 IGS Glazing 5	IGS Glazing 1 IGS Glazing 3 IGS Glazing 4 IGS Glazing 5		IGS Glazing 1 IGS Glazing 3 IGS Glazing 4
Frame Types	Aluminium	Aluminium		
Average Glazing U-Value (W/m².K)	2.40	2.40		2.40
Average Glazing SHGC	0.23	0.23	0.00	0.23
Shading Systems	Horizontal Device	Horizontal Device	Horizontal Device	Horizontal Device
Wall Area (m²)	48.32	145.2		97.96
Wall Types	Wall	Wall		Wall
Methodology	Wall			
Wall Construction	IGS Wall-1	IGS Wall-1		
Wall Thickness	90	90		90
Average Wall R-value (m².K/W)	2.00	2.00		2.00
Solar Absorptance	0.6	0.6	0.6	0.6

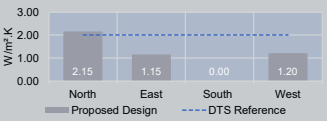
Façade

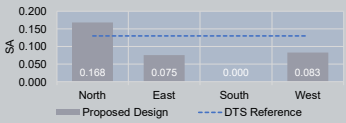
Wall Glazing Areas + Results

User Input | Active Row - All Inputs Required | User Dropdown | Calculator

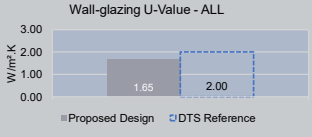
Results | Class 6 - department stores, shopping centres | Climate Zone 4 - Hot dry summer, cool winter

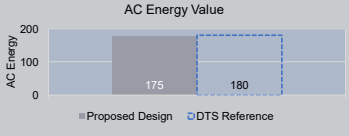
Method 1





Method 2





Wall Glazing Area

Compliant Solution =
Non-Compliant Solution =

North	Glazing Reference	Height (m)	Width (m)	Glazing Area (m²)	Shading Reference	Wall Reference	Wall Area (m²)	Total Area (m²)	Internal
1	GL-W1	2.7	11.6	31.32	North2	Ext-W1	48.32	79.64	
2	GL-W2	2.6	8.5	22.1	North2			22.10	
3	GL-W3	2.3	3.7	8.51				8.51	
4	GL-W4	2.3	6.7	15.41	North1			15.41	
5	GL-W5	2	6.5	13	North4			13.00	
6	GL-W6	4	15.6	62.4				62.40	
7	GL-W6	3	36.2	108.6				108.60	
8	GL-W7	3.25	29.2	94.9				94.90	
9	GL-W8	2.6	1.8	4.68	North3			4.68	
10									
11									
12									
13									
14									
15									
16									

	Result	Target				
Wall-glazing U-Value (W/m².K)	2.15	2.00	Glazing Area (m²)	314.72	Average Glazing U-Value (W/m².K)	2.40
Solar Admittance	0.168	0.130	Wall Area (m²)	48.32	Average Glazing SHGC	0.23
			Glazing to Façade Ratio	87%	Average Wall R-Value (m².K/W)	2.00

East	Glazing Reference	Height (m)	Width (m)	Glazing Area (m²)	Shading Reference	Wall Reference	Wall Area (m²)	Total Area (m²)	Internal
1	GL-W1	2	2.6	5.2		Ext-W1	145.2	150.40	
2	GL-W3	2	0.8	1.6	East1			1.60	
3	GL-W4	4	14.1	56.4				56.40	
4	GL-W5	1.7	5.1	8.67				8.67	
5	GL-W6	2.3	1.1	2.53	East1			2.53	
6	GL-W7	2.7	0.4	1.08	East1			1.08	

	Result	Target				
Wall-glazing U-Value (W/m².K)	1.15	2.00	Glazing Area (m²)	75.48	Average Glazing U-Value (W/m².K)	2.40
Solar Admittance	0.075	0.130	Wall Area (m²)	145.2	Average Glazing SHGC	0.23
			Glazing to Façade Ratio	34%	Average Wall R-Value (m².K/W)	2.00

South	Glazing Reference	Height (m)	Width (m)	Glazing Area (m²)	Shading Reference	Wall Reference	Wall Area (m²)	Total Area (m²)	Internal
1									
2									
3									
4									
5									
6									

	Result	Target				
Wall-glazing U-Value (W/m².K)			Glazing Area (m²)		Average Glazing U-Value (W/m².K)	
Solar Admittance			Wall Area (m²)		Average Glazing SHGC	
			Glazing to Façade Ratio		Average Wall R-Value (m².K/W)	

West	Glazing Reference	Height (m)	Width (m)	Glazing Area (m²)	Shading Reference	Wall Reference	Wall Area (m²)	Total Area (m²)	Internal
1	GL-W1	3.25	17	55.25		Ext-W1	97.96	153.21	
2	GL-W3	2.3	0.4	0.92	West1			0.92	
3	GL-W4	2.7	0.4	1.08	West1			1.08	
4									
5									
6									

	Result	Target				
Wall-glazing U-Value (W/m².K)	1.20	2.00	Glazing Area (m²)	57.25	Average Glazing U-Value (W/m².K)	2.40
Solar Admittance	0.083	0.130	Wall Area (m²)	97.96	Average Glazing SHGC	0.23
			Glazing to Façade Ratio	37%	Average Wall R-Value (m².K/W)	2.00

Reference Building

Include shading?

	Glazing to Façade Ratio	Method 1 Wall U-Value (W/m².K)	Method 1 Glazing U-Value (W/m².K)	Shading Multiplier	Method 1 SHGC	Method 2 Wall U-Value (W/m².K)	Method 2 Glazing U-Value (W/m².K)	Method 2 SHGC
North	87%	0.50	2.23	0.842	0.18	0.50	2.98	0.00
East	34%	0.50	4.89	0.955	0.40			
South								
West	37%	0.50	4.57	0.977	0.36			

Appendix C – Stormwater Management Plan

IGS INTEGRATED GROUP SERVICES

Value | Innovation | Trust

Stormwater Management Plan

495-507 Barkly Street,
Footscray

Date: 20/10/2022
Project No: 22111

Level 4, 108 Elizabeth Street,
Melbourne VIC 3000
Web: www.igs.com.au

Document Control

Version	Date	Issue	Author		Reviewer	
00	30/09/2022	Issue for Review	Earnest Joseph	EJ	Li Huan	LH
01	20/10/2022	Updated Issue for Review	Earnest Joseph	EJ	Li Huan	LH

TABLE OF CONTENTS

1 Executive Summary

Integrated Group Services (IGS) has been commissioned to prepare a Conceptual Stormwater Management Plan (CSMP) for the proposed commercial development located at 495-507 Barkly Street, Footscray.

The stormwater quality modelling was undertaken using the MUSICX version 1.1.0 software. The modelling results (see **Table 1**) indicate the 70%, 80%, 45% and 45% reduction targets for Gross Pollutants (GP), Total Suspended Solids (TSS), Total Phosphorus (TP) and Total Nitrogen (TN) respectively can be achieved.

Pollutant	Sources	Residual Load	Reduction Achieved (%)	Reduction Target (%)
Flow (ML/yr)	2.66	1.95	27	0
Total Suspended Solids	88.03	13.5	84.7	80
Total Phosphorus	0.424	0.08	80.3	45
Total Nitrogen	5.9	1.8	69.7	45
Gross Pollutants	99.1	0	100	70

Table 1: Treatment Train Effectiveness

Stormwater management for the site is achieved using the following devices:

- One (1) x 30 kL Rainwater Tank
- One (1) x 50m^2 Rain Raingarden

The development meets the water quality performance objectives as set out in the Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO) or as amended.

2 Overview

2.1 Introduction

This report has been prepared by Integrated Group Services (IGS) to be considered part of a Development Application (DA) for a proposed development located at 495-507 Barkly Street, Footscray. The site is located within the City of Maribyrnong.

The development a commercial used development consists of 2 storeys building with Retail, Recreational and Childcare facilities.

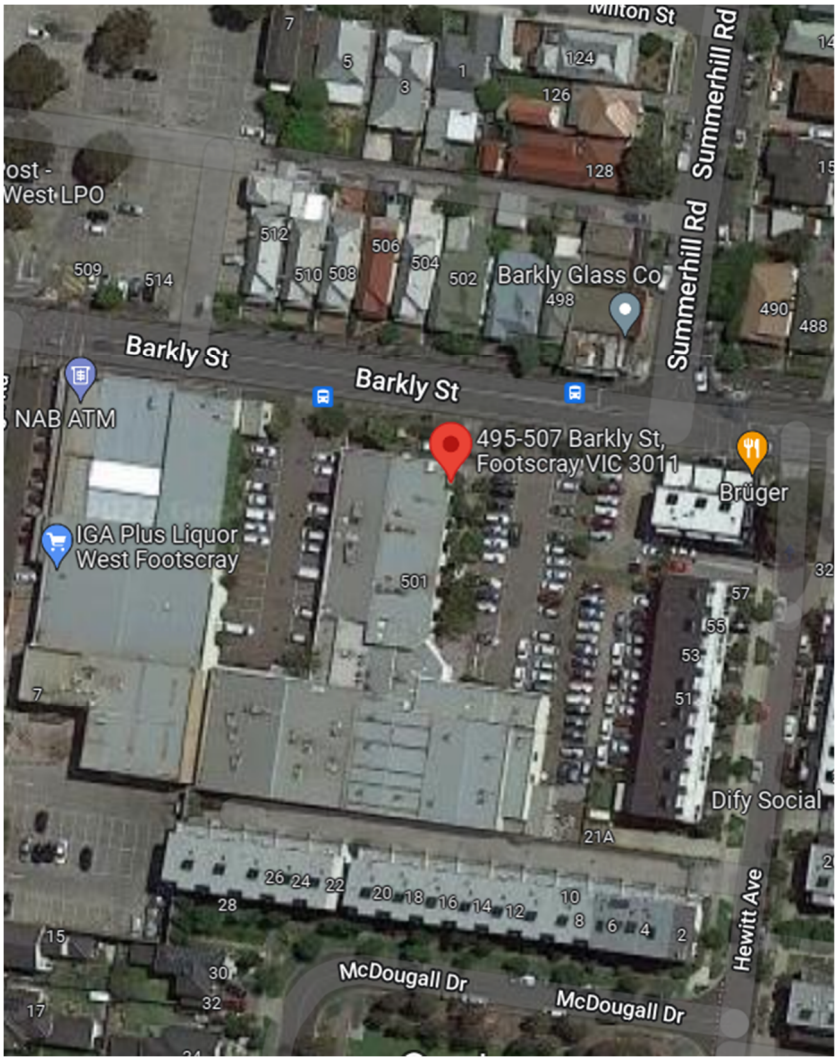


Figure 1: Site Location

2.2 Site Layout

The proposed development is presented on **Figure 2**.

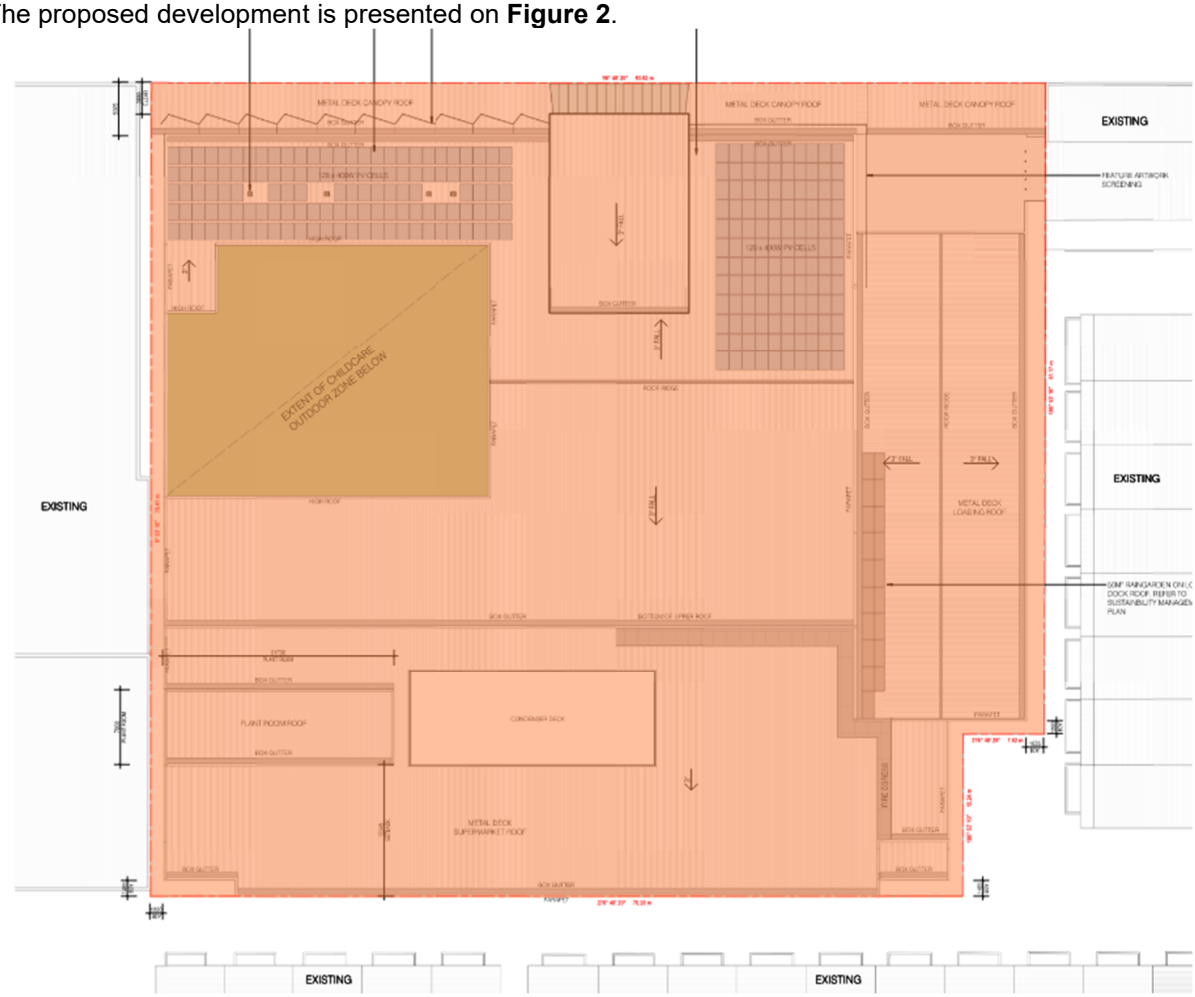


Figure 2: Proposed Site Layout

3 Quality Management – Operational Controls

3.1 Water Quality Objectives

Melbourne Water (2018) requires treatment of stormwater so that annual pollutant loads achieve targets set out in the Best Practice Environmental Management Guidelines (BPEMG). These are:

- 80% reduction in Total Suspended Solids (TSS) from typical urban loads.
- 45% reduction in Total Nitrogen (TN) from typical urban loads.
- 45% reduction in Total Phosphorus (TP) from typical urban loads; and
- 70% reduction in Gross Pollutants (GP) from typical urban loads.

3.2 Treatment Train

Based on the site characteristics and the range of available Stormwater Quality Improvement Devices (SQIDs), this study has developed an overall concept that will satisfy the requirements of downstream environmental protection. **Figure 3** shows a schematic representation of the proposed treatment train elements.

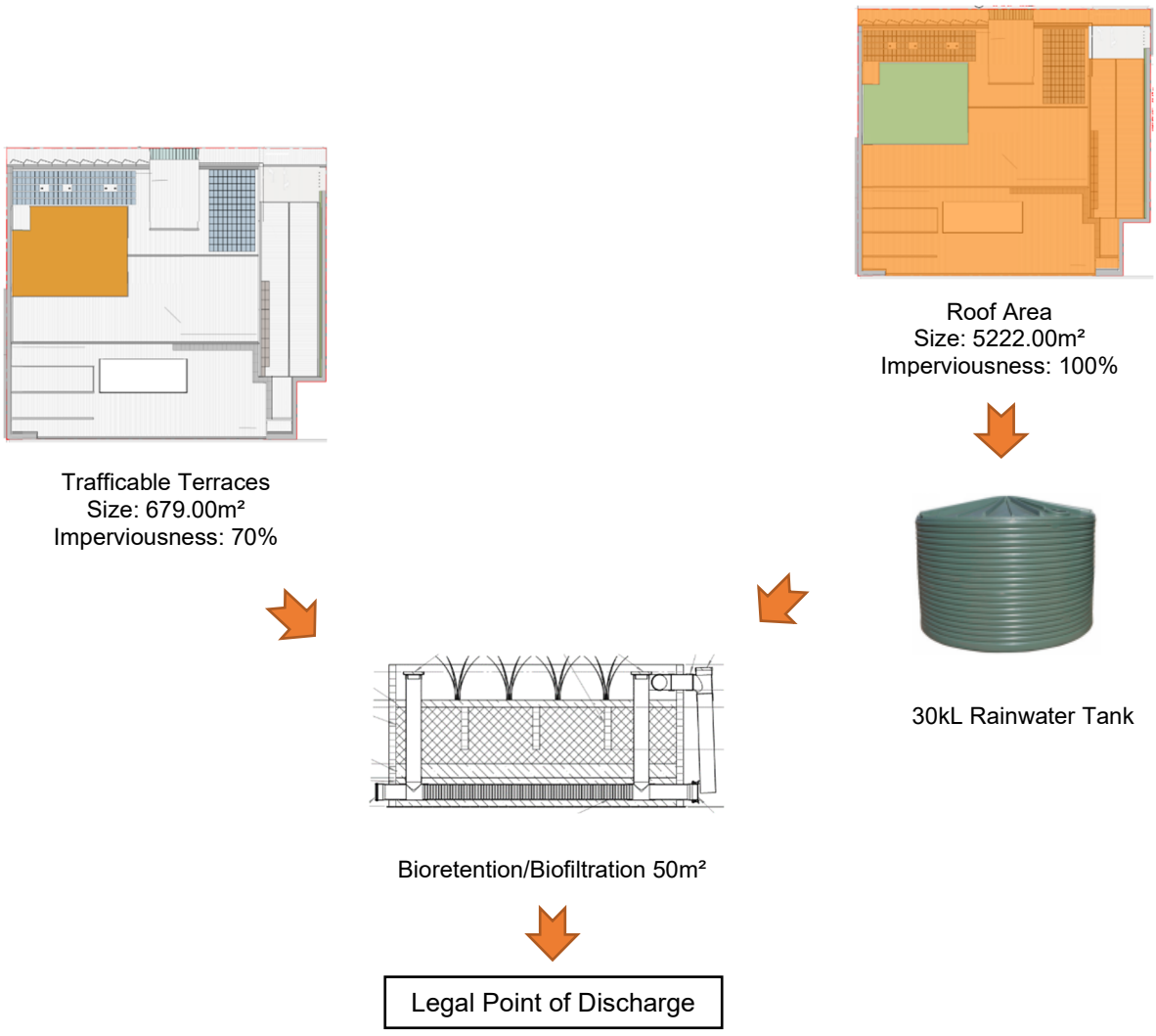


Figure 3: Treatment Train Schematic

3.3 Raingarden

Raingardens are specially designed garden beds that filter stormwater runoff from surrounding areas or stormwater pipes. Raingardens are also called bioretention systems because they use soil, plants, and microbes to biologically treat stormwater:

Although they may look like a normal garden, raingardens are designed to stop stormwater run-off from polluting Stormwater waterways with nutrients, rubbish and other sediments, the system operates as follows.

- Water collects and settles on the garden surface.
- Water soaks through the plants and filter media, trapping rubbish and sediment on the surface.
- Plants use the nutrients in the stormwater, and toxins stick to the soil.
- The soil and plant roots work together to naturally filter the water and remove pollutants.

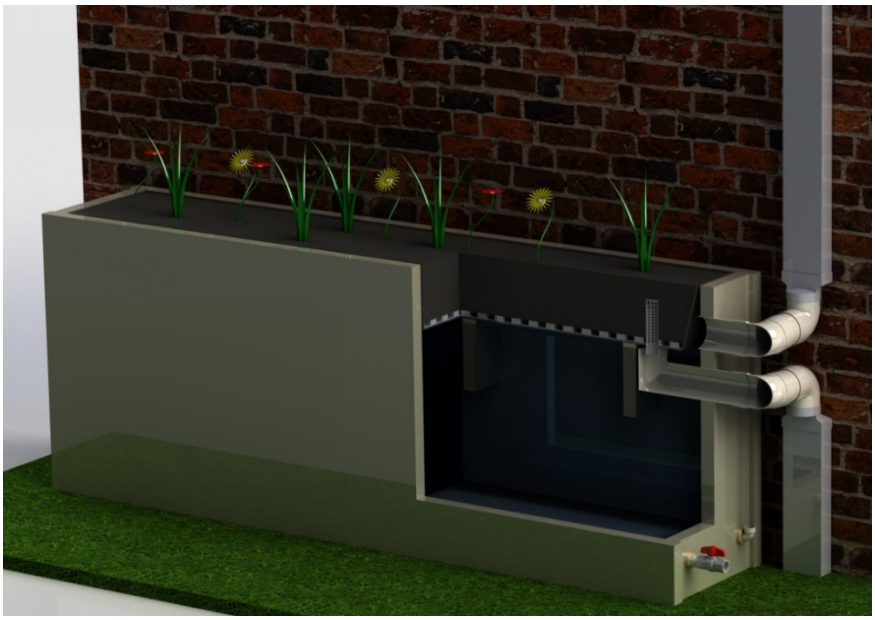


Figure 4: Typical Raingarden in ground illustration

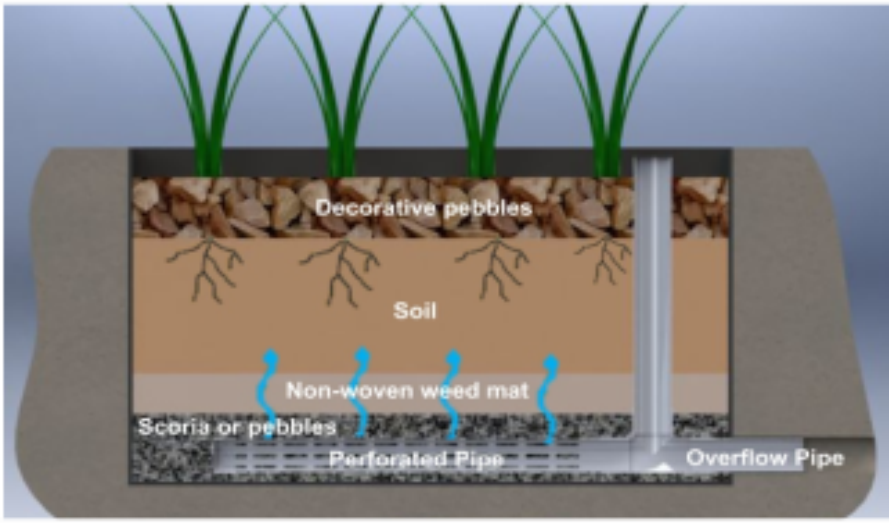
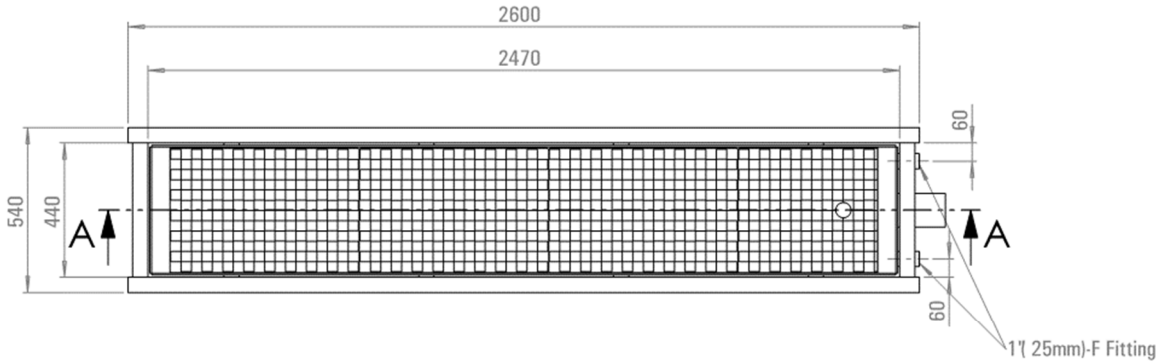
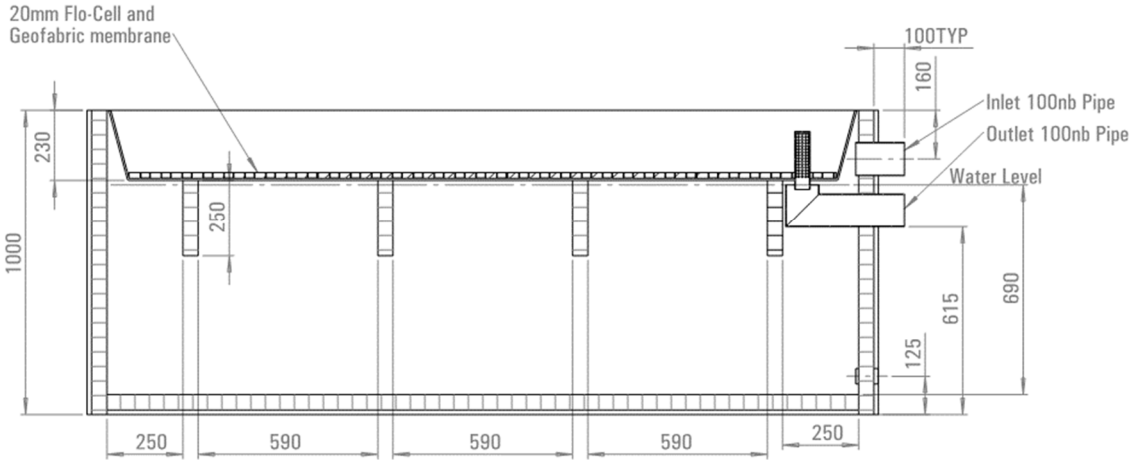
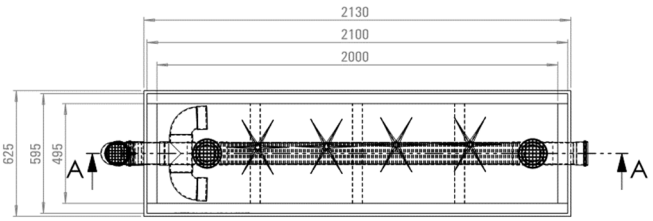


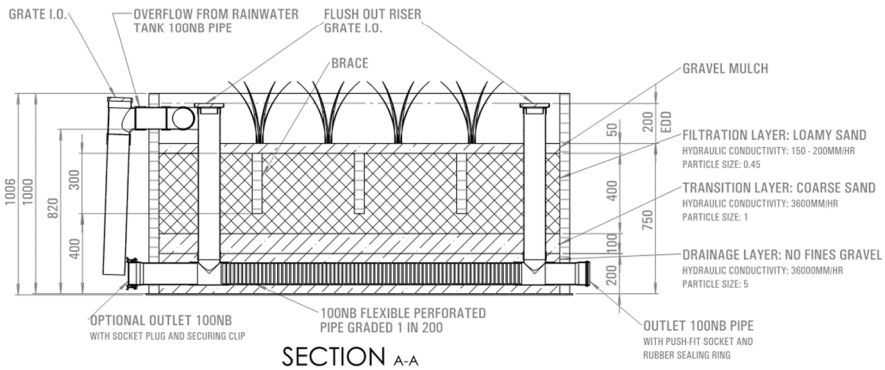
Figure 5: Typical Raingarden in ground for illustration purpose





SECTION A-A





SECTION A-A

Figure 6: Typical Raingarden in ground diagram for illustration purpose

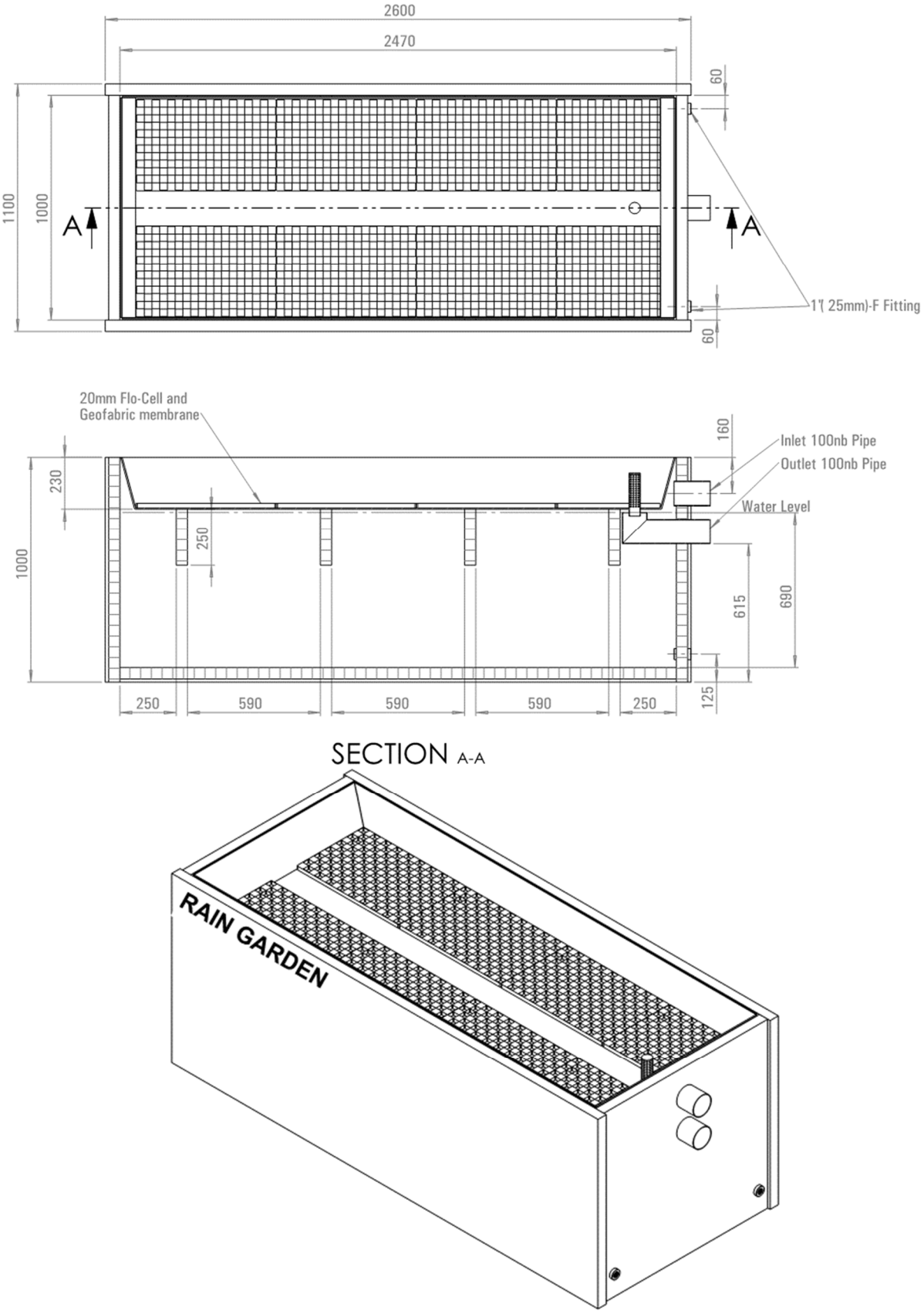


Figure 7: Typical Raingarden above ground diagram for illustration purpose

Latest Run : Node Water Balance : Biofiltration

	Flow ML/y	TSS kg/y	TP kg/y	TN kg/y	GP kg/y
Flow In	2.029	61.663	0.316	4.274	9.375
ET Loss	0.084	0	0	0	0
Infiltration Loss	0	0	0	0	0
Low Flow Bypass Out	0	0	0	0	0
High Flow Bypass Out	0	0	0	0	0
Pipe Out	1.586	4.55	0.032	1.039	0
Weir Out	0.359	8.938	0.052	0.745	0

	Flow %	TSS %	TP %	TN %	GP %
% Load Reduction	4.132	78.127	73.523	58.243	100

Figure 8: Raingarden Water Balance Parameters

3.4 Rainwater Tank

Rainwater tanks can reduce the harm to Stormwater waterways caused by too much stormwater. Tank water can be reused for toilet flushing, laundry washing, gardens and lawn irrigation and cars wash, this will significantly be reducing the potable / drinking cold water consumption. For this development, the rainwater collected will be used for toilet flushing and landscaping irrigation.

Rainwater tanks collect stormwater run-off from impervious surfaces such as roofs, the tank will be fitted with an overflow outlet that in the event of tank full capacity the excessive pour down will be redirected or fall into the stormwater drainage system.

Rainwater tanks are generally used for watering gardens are much less efficient than tanks used for flushing toilets.

Advantages of rainwater tanks are that they:

- minimise water usage when used in the toilet, laundry or garden.
- reduce strain on the stormwater drainage system.
- retain water close to source.
- reduce site run-off and flood peaks.

To maximise the use of roof rainwater runoff it will be best to increase the tank capacity and ensure the design allows for maximum catchment. And to maximise the use of rainwater allow for irrigation dripper line to a suitable garden area to ensure tank water suitably distributed.

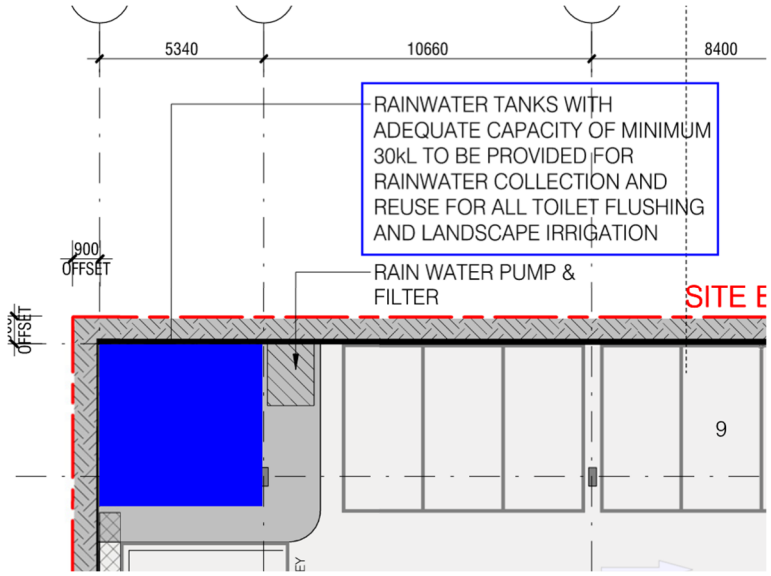


Figure 9: Proposed Rainwater Tank location within Basement 02

Latest Run : Node Water Balance : Rainwater Tank

	Flow ML/y	TSS kg/y	TP kg/y	TN kg/y	GP kg/y
Flow In	2.42	63.744	0.368	5.421	89.715
ET Loss	0	0	0	0	0
Infiltration Loss	0	0	0	0	0
Low Flow Bypass Out	0	0	0	0	0
High Flow Bypass Out	0	0	0	0	0
Pipe Out	1.14	22.566	0.163	2.39	0
Weir Out	0.654	14.811	0.097	1.406	0
Reuse Supplied	0.627	N/A	N/A	N/A	N/A
Reuse Requested	0.731	N/A	N/A	N/A	N/A

	Flow %	TSS %	TP %	TN %	GP %
% Reuse Demand Met	85.869	N/A	N/A	N/A	N/A
% Load Reduction	25.883	41.364	29.399	29.97	100

Figure 10: Rainwater Tank Water Balance Parameters

4 Quality Analysis – MUSIC

Water quality modelling has been undertaken of the post-development (mitigated) scenario using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) software to demonstrate the load-based reduction targets are achieved. A stormwater treatment train has been developed and modelled to determine the effectiveness of the proposed system in achieving the relevant water quality objectives.

4.1 Rainfall and Evapotranspiration Parameters

The meteorological and rainfall-runoff data used in the MUSIC model is summarized below.

Parameter	Value
Rainfall station	Melbourne Airport
Time step	6 minutes
Modelling period	January 1971 – December 1980
Mean annual rainfall	575 mm
Mean annual Evapo-Transpiration	1041 mm

Table 3: Meteorological and Rainfall Runoff Data

4.2 Catchment Parameters

Based on the proposed land uses within the development, the subject site has been modelled as an urban source node. The rainfall-runoff parameters and pollutant generation parameters are based on parameters recommended by Melbourne Water **(2018) (Tables 4 and 5).**

Parameter	All Nodes
Rainfall threshold (mm)	1.0
Soil storage capacity (mm)	120
Initial storage (% capacity)	25
Field capacity (mm)	50
Infiltration capacity coefficient a	200
Infiltration capacity exponent b	1
Initial depth (mm)	10
Daily recharge rate (%)	25
Daily base flow rate (%)	5
Daily deep seepage rate (%)	0

Table 4: Rainfall Runoff Parameters

Catchment ID		Total Suspended Solids [log (mm/L)]		Total Phosphorous [log (mm/L)]		Total Nitrogen [log (mm/L)]	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Landscape	Storm Flow Concentration	1.9	0.333	-0.7	0.242	0.243	0.182
	Base Flow Concentration	0.96	0.401	-0.731	0.36	-0.566	0.363
Hardstand	Storm Flow Concentration	2.431	0.333	-0.301	0.242	0.343	0.205
	Base Flow Concentration	0	0	0	0	0	0
Roof	Storm Flow Concentration	1.301	0.333	-0.886	0.242	0.301	0.205
	Base Flow Concentration	0	0	0	0	0	0

Table 5: Pollutant Export Parameters for Urban Sites

4.3 Treatment Node Parameters

The following sections describe the modelling parameters applied to MUSIC for each of the treatment nodes included as part of the water quality assessment.

4.4 MUSIC Results

Results of the MUSIC modelling for the treatment train effectiveness are summarised in **Table 6**. The results indicate the 80%, 45%, 45% and 70% reduction target for TSS, TP, TN and Gross Pollutants respectively are achieved. A screen capture of the MUSIC modelling results is included as **Figure 12**.

Pollutant	Sources	Residual Load	Reduction Achieved (%)	Reduction Target (%)
Flow (ML/yr)	2.66	1.95	27	0
Total Suspended Solids	88.03	13.5	84.7	80
Total Phosphorus	0.424	0.08	80.3	45
Total Nitrogen	5.9	1.8	69.7	45
Gross Pollutants	99.1	0	100	70

Table 6: Treatment Train Effectiveness

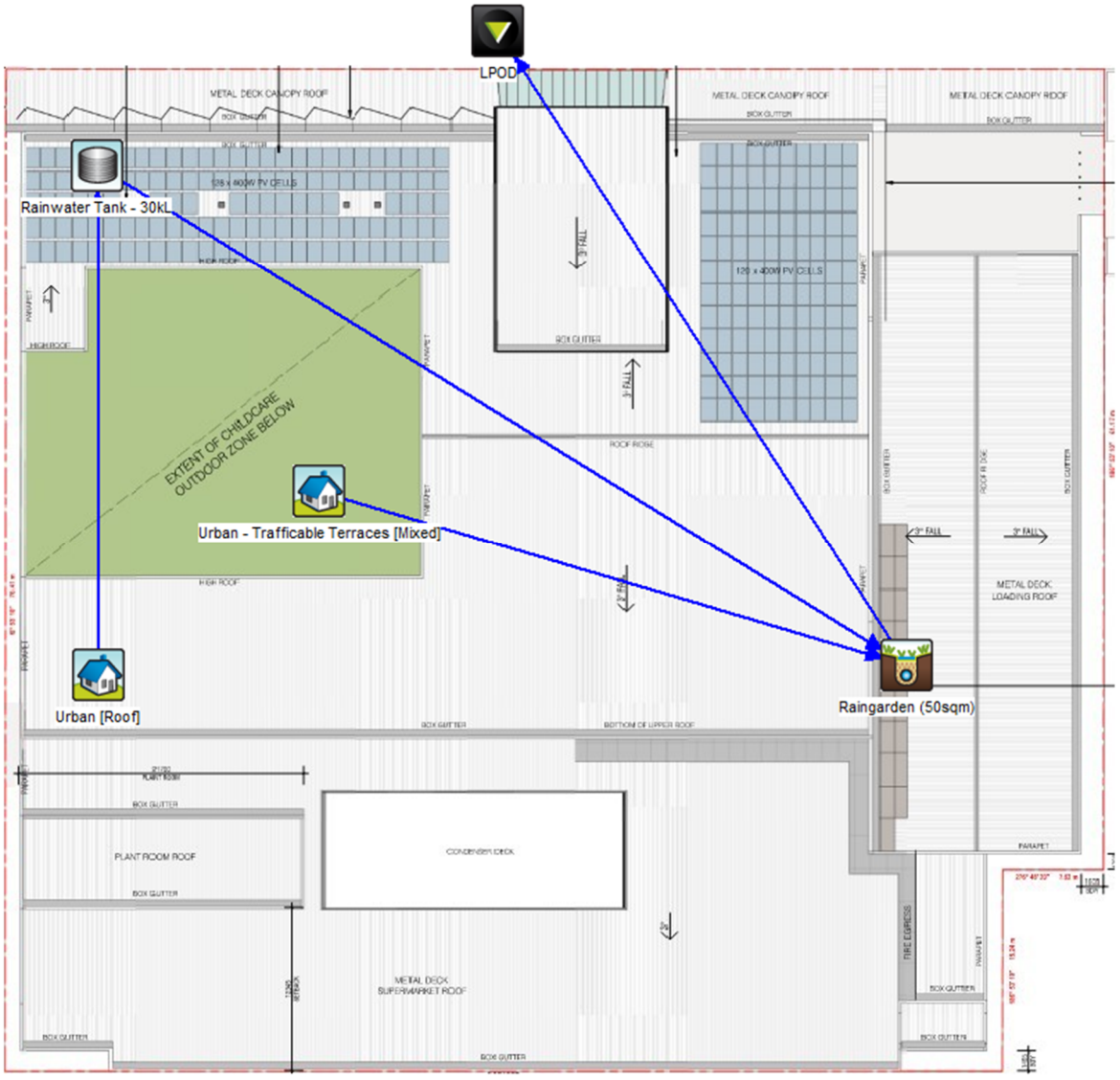


Figure 11: Treatment Train Layout

Latest Run : Treatment Train Effectiveness : LPOD

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.655	1.945	26.75
Total Suspended Solids (kg/yr)	88.03	13.49	84.68
Total Phosphorus (kg/yr)	0.424	0.0836	80.28
Total Nitrogen (kg/yr)	5.899	1.785	69.74
Gross Pollutants (kg/yr)	99.09	0	100

Figure 12: Treatment Train Music Model Screen Capture

5 Summary

Based on the water quality assessment using the MUSIC software, it is found that the pollutant reduction targets can be achieved by adopting the Raingarden and SWAL as specified in **Table 7.**

Stormwater Quality Improvement Device	Quantity
Raingardens (50m² of area)	1
Minimum RWT collection (30kL)	1

Table 7: Recommended Stormwater Quality Improvement Devices

6 Recommendation

6.1 Stormwater Quality Improvement Device

6.1.1 Rainwater Tank

Rainwater tanks can reduce the harm to stormwater waterways caused by too much stormwater. Tank water can be reused for toilet flushing, laundry washing, gardens and lawn irrigation and car wash, this will significantly reduce the potable / drinking cold water consumption. For this project, the rainwater collected will be used for toilet flushing and landscaping irrigation.

6.1.2 Raingarden

The recommended raingardens are designed to capture stormwater at the downstream end of the drainage network and treat the runoff prior to discharging into the local waterway. The pollutant reduction targets achieved (as modelled in MUSIC) are summarised in **Table 8**.

Pollutant	Sources	Residual Load	Reduction Achieved (%)	Reduction Target (%)
Flow (ML/yr)	2.66	1.95	27	0
Total Suspended Solids	88.03	13.5	84.7	80
Total Phosphorus	0.424	0.08	80.3	45
Total Nitrogen	5.9	1.8	69.7	45
Gross Pollutants	99.1	0	100	70

Table 8: MUSIC Modelling Results

7 Site Managements Plan During Construction

The stormwater management strategy will adopt the following procedures during construction:

- Ground water seepage shall be managed and treated prior to discharge to council's LPD by builder / contractor during construction. To protect drainage infrastructure and receiving waters from sedimentation and contamination.
- To protect the site and surrounding area from environmental degradation prior to and during construction of subdivision works.
- An application should describe how the site will be managed prior and during the construction period and may set out requirements for managing:

    - Erosion and sediment.
    - Stormwater.
    - Litter, concrete, and other construction wastes; and
    - Chemical contamination.

8 Maintenance

The maintenance procedure shall be in conjunction with the building maintenance and specification and shall Comply with relevant / applicable authority design guidelines and codes of practice requirements. The stormwater management strategy shall adopt the following maintenance procedures.

- Quarterly routine maintenance procedure to thoroughly maintain raingarden free of debris and general clean-up process by building management as part of building maintenance programme.
- Annually / 6-month drain and flushing of rainwater tank cleaning tank internally from debris and sediment collection captured from roof surface, by building management as part of building maintenance programme.
- Quarterly inspection of gutters to ensure they are free of debris and clean as required.
- Quarterly inspection of stormwater downpipes and grates to ensure no water leakage, they are free of debris and clean as required.
- Yearly inspections of rainwater tanks and supports to ensure no leakage, inspect joints, and clean as required.
- Water storage tanks should be inspected, cleaned, and disinfected in accordance with AS 3500.
- Bi-annual inspection of pumps to ensure correct operation, no leakage and clean as required.
- Service items and equipment in conformance with the maintenance schedules as per the operation and maintenance manuals.

    - Carry out the manufacturers' recommended maintenance instruction.
    - Attend to reported defects and complaints.
    - Check for and repair corrosion.
    - Check for and rectify any unsafe conditions.
    - Replace faulty or damaged parts and consumable components.
    - connections, for deterioration and for freedom of movement of assembly.
    - Identification of pipes, conduits, and ducts maintenance: To AS 1345.
    - Safety signs maintenance: To AS 1319.
    - Remove waste and clean all parts of the installation.
    - Remove temporary protective coatings, packaging, and labels.
    - Clean screens and strainer baskets.

9 References

The report has used the following references:

- Melbourne Water (2018) MUSIC Guidelines – Input Parameters and Modelling approaches for MUSIC user in Melbourne Water's services area 2018.
- Urban Stormwater Best Practice Environmental Management Guidelines.

Waste Management Plan

495-507 Barkly Street, Footscray

October 2022

ratio:waste

Report Prepared For:
Fabcot Pty Ltd

Version	Date	Reason for Issue	Author
REP01-D01	21/09/2022	Town Planning – Draft	M Fairlie
REP01-F01	27/09/2022	Town Planning – Final	M Fairlie
REP01-F02	19/10/2022	Town Planning – Revised Final	M Fairlie

Directory Path	Y:\19001-19500\19189W - 495-507 Barkly Street, Footscray\9. Reports\19189W-REP01-F02.docx

Table of Contents:

1 Introduction

1.1 Introduction

Ratio Consultants was commissioned by Fabcot Pty Ltd. (the permit applicant) to assess the waste management implications of the proposed mixed-use development 495-507 Barkly Street in Footscray.

The proposal includes a mixture of retail (supermarket, specialty retail and liquor) uses on ground level, and childcare, medical, commercial, and recreation uses on the level above.

This report has been prepared to accompany the Town Planning Application for the proposed development.

1.2 Site Location

The subject site is located on the southern side of Barkly Street in Footscray. Figure 1.1 below shows an aerial view of the site and its immediate surrounds.

Figure 1.1: Aerial View of Site and Surrounds

Source: Landchecker.com.au

1.3 Proposal

It is proposed to redevelop the land at 495-507 Barkly Street in Footscray for the purpose of a mixed-use development. More specifically, the development summary is provided in Table 1.1 below.

Table 1.1: Development Summary

Waste Source	Floor Area (m^2)
Supermarket	3,579
Specialty Retail	577
Liquor	138.5
Childcare	745
Medical	425
Commercial	368
Recreation	385

Refer to Appendix A for a copy of the Architectural Floor Plans assessed in the preparation of this Waste Management Plan.

1.4 Waste Management Plan Limitations

Waste management arrangements during the construction and fit-out stages of the development, and on-going operation and monitoring of the waste management arrangements for the development following the occupation of the development are outside the scope of this Waste Management Plan.

1.5 Relevant Policies and Guidelines

Relevant policies and guidelines considered as part of the preparation of this Waste Management Plan include:

— Australian Government – National Waste Policy: Less Waste, More Resources (2018).
— Victorian Government – Recycling Victoria: A New Economy (2020).
— Sustainability Victoria – Better Practice Guide for Waste Management and Recycling in Multi-Unit Developments (2018).
— EPA Victoria – Noise Control Guidelines (2021).

2 Waste Volume Assessment

2.1 Waste Volume Assessment

The following waste generation rates have been identified for the development, based on waste generation rates provided within Sustainability Victoria's Guidelines, waste volumes observed at existing similar supermarkets in Metropolitan Melbourne, and our experience with similar developments:

Supermarket

- General Waste: 400 L/100m^2/week
- Paper/Cardboard: 1,200 L/100m^2/week

Specialty Retail / Liquor

- General Waste: 50 L/100m^2/day
- Commingled Recycling: 25 L/100m^2/day
- Paper/Cardboard: 25 L/100m^2/day

Childcare

- General Waste: 350 L/100m^2/week
- Commingled Recycling: 175 L/100m^2/week
- Paper/Cardboard: 175 L/100m^2/week

Medical / Commercial / Recreation

- General Waste: 10 L/100m^2/day
- Commingled Recycling: 5 L/100m^2/day
- Paper/Cardboard: 5 L/100m^2/day

Applying the above waste generation rates, the waste generation estimates for the development are outlined in Table 2.1 below.

Table 2.1: Waste Volume Assessment

Waste Storage Location	Waste Source	Floor Area (m^2)	General Waste Generation Rate	General Waste Volume	Commingled Recycling Generation Rate	Commingled Recycling Volume	Paper/Cardboard Generation Rate	Paper/Cardboard Volume
Supermarket Bin Store (South of Loading Dock)	Supermarket	3,579	400 L/100m^2/week	14,316 L/week	-	-	1,200 L/100m^2/week	42,948 L/week
Total Generation				**14,316 L/week**	-	-	-	**42,948 L/week**
Specialty Retail / Liquor Bin Store (North of Loading Dock)	Specialty Retail	577	50 L/100m^2/day	2,020 L/week	25 L/100m^2/day	1,010 L/week	25 L/100m^2/day	1,010 L/week
	Liquor	138.5	50 L/100m^2/day	485 L/week	25 L/100m^2/day	242 L/week	25 L/100m^2/day	242 L/week
Total Generation				**2,504 L/week**	-	**1,252 L/week**	-	**1,252 L/week**
Childcare / Medical / Commercial / Recreation Bin Store (South-east of Specialty Retail Uses)	Childcare	745	350 L/100m^2/week	2,608 L/week	175 L/100m^2/week	1,304 L/week	175 L/100m^2/week	1,304 L/week
	Medical	425	10 L/100m^2/day	298 L/week	5 L/100m^2/week	149 L/week	5 L/100m^2/day	149 L/week
	Commercial	368	10 L/100m^2/day	184 L/week	5 L/100m^2/week	92 L/week	5 L/100m^2/day	92 L/week
	Recreation	385	10 L/100m^2/day	270 L/week	5 L/100m^2/week	135 L/week	5 L/100m^2/day	135 L/week
Total Generation				**3,359 L/week**	-	**1,679 L/week**	-	**1,679 L/week**

3 Waste Management System and Storage Details

3.1 Waste Management Systems

Supermarket

The proposed waste system for the supermarket is summarised as follows:

- Staff and back of house areas shall be provided with receptacles for the temporary storage of general waste, organics, and commingled recycling.
- A dedicated bin store shall be provided to the south of the loading dock containing collection bins for general waste, organics, and commingled recycling, a baler for paper/cardboard and soft plastics, and pallets for storing the baled material.
- Appointed personnel shall be responsible for emptying full general waste, organics, and commingled recycling receptacles into the collection bins provided within the bin store, as required.
- Appointed personnel shall be responsible for baling paper/cardboard and soft plastics using the baler provided within the bin store. Bales shall be temporarily stored on pallets provided adjacent to the baler between collections.
- Once the Victorian Government commences its Container Deposit Scheme in 2023, a reverse vending machine shall be provided in-store for customer use.
- REDcycle (soft plastics recycling), Ecobatt (battery recycling) and MobileMuster (mobile phone recycling) services shall be available in-store for customer use.

Specialty Retail / Liquor

The proposed waste system for the specialty retail / liquor uses is summarised as follows:

- Staff and back of house areas shall be provided with receptacles for the temporary storage of general waste, commingled recycling, and paper/cardboard.
- A dedicated bin store shall be provided to the north of the loading dock containing collection bins for general waste, commingled recycling, and paper/cardboard, as well as a hard waste storage area.
- Appointed personnel shall be responsible for emptying full general waste, commingled recycling, and paper/cardboard receptacles into the collection bins provided within the bin store, as required.

Childcare / Medical / Commercial / Recreation

The proposed waste system for the childcare / medical / commercial / recreation uses is summarised as follows:

- Rooms and areas where waste is expected to be generated shall be provided with receptacles for the temporary storage of general waste, commingled recycling, and paper/cardboard.
- A dedicated bin store shall be provided to the south-west of the specialty retail uses containing collection bins for general waste, commingled recycling, and paper/cardboard, as well as a hard waste storage area.
- Appointed personnel shall be responsible for emptying full general waste, commingled recycling, and paper/cardboard receptacles into the collection bins provided within the bin store, as required.

3.2 Waste Storage Requirements

The waste storage requirements for the development are outlined in Table 3.1 below.

Table 3.1: Waste Storage Requirements

Bin Store	Item	Quantity	Footprint Required (m^2)
Supermarket Bin Store (South of Loading Dock)	1,100L Rear-Lift General Waste Bin	5	6.65
	Baler for Paper/Cardboard and Soft Plastics	1	2.20
	240L Rear-Lift Organics Bin	2	0.86
	240L Rear-Lift Commingled Recycling Bin	2	0.86
Total Footprint Required Excluding Circulation (m^2):			**10.57**
Specialty Retail / Liquor Bin Store (North of Loading Dock)	1,100L Rear-Lift General Waste Bin	1	1.33
	1,100L Rear-Lift General Waste Bin	1	1.33
	1,100L Rear-Lift General Waste Bin	1	1.33
	1sqm Hard Waste Storage Area	1	1.00
Total Footprint Required Excluding Circulation (m^2):			**4.99**
Childcare / Medical / Commercial / Recreation Bin Store (South-east of Specialty Retail Uses)	1,100L Rear-Lift General Waste Bin	2	2.66
	1,100L Rear-Lift General Waste Bin	1	1.33
	1,100L Rear-Lift General Waste Bin	1	1.33
	1sqm Hard Waste Storage Area	1	1.00
Total Footprint Required Excluding Circulation (m^2):			**6.32**

3.3 Waste Storage Layouts

The proposed waste storage layouts for the development are shown in Figures 3.1, 3.2, and 3.3 below.

Figure 3.1: Supermarket Bin Store Waste Storage Layout

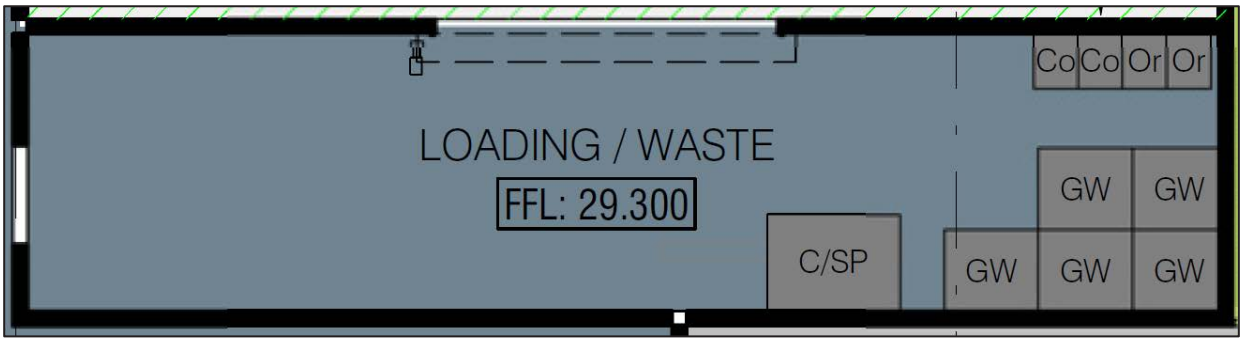
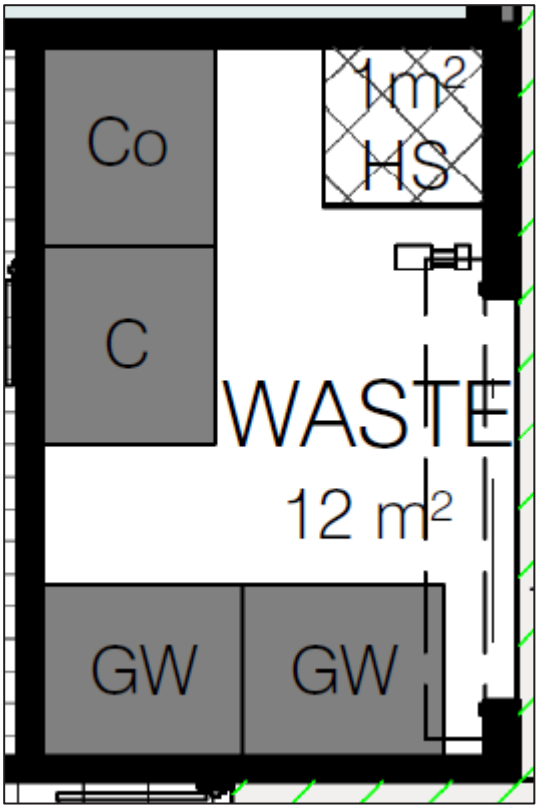


Figure 3.2: Specialty Retail / Liquor Bin Store Waste Storage Layout

Figure 3.3: Childcare / Medical / Commercial / Recreation Bin Store Waste Storage Layout



4 Waste Collection Details

4.1 Waste Collection Requirements

The waste collection requirements for the development are outlined in Table 4.1 below.

Table 4.1: Waste Collection Requirements

Bin Store	Waste Stream	Volume (L/week)	Bin Size (L)	Bin Quantity	Collection Frequency (per week)	Capacity (L/week)
Supermarket Bin Store (South of Loading Dock)	General Waste	14,316	1,100	5	3	16,500
	Organics	-	240	2	3	1,440
	Commingled Recycling	-	240	2	3	1,440
	Paper/Cardboard and Soft Plastics Bales	42,948 (un-baled)	-	-	As Required	-
Specialty Retail / Liquor Bin Store (North of Loading Dock)	General Waste	2,504	1,100	1	3	3,300
	Commingled Recycling	1,252	1,100	1	2	2,200
	Paper/Cardboard	1,252	1,100	1	2	2,200
	Hard Waste	-	-	-	As Required	-
Childcare / Medical / Commercial / Recreation Bin Store (South-east of Specialty Retail Uses)	General Waste	3,359	1,100	2	2	4.400
	Commingled Recycling	1,679	1,100	1	2	2,200
	Paper/Cardboard	1,679	1,100	1	2	2,200
	Hard Waste	-	-	-	As Required	-

Note: should the above weekly capacities be insufficient to accommodate the actual waste volumes generated by the development once operational, the collection frequencies may be increased or more bins may be provided within the bin stores.

4.2 Waste Collection Methodology

Waste collection activities are proposed to occur from the loading dock at the south-east corner of the subject site.

It is anticipated that waste collection activities are to be undertaken by 9.8-metre-long rear-loading vehicles.

9.8-metre-long rear-loading vehicles have an operation height clearance requirement of 4.0 metres. The loading dock has been designed to accommodate vehicles of a size up to and including 12.5-metre-long heavy rigid vehicles (HRVs), with no height clearance issues identified (4.5 metres height clearance has been provided at the loading dock).

A swept path assessment has been undertaken demonstrating that a 12.5-metre-long HRV can adequately manoeuvre into and out of the site via the loading dock. This swept path assessment is included within the appendices of the Traffic Impact Assessment Report prepared by Ratio.

The waste collection contractor shall be responsible for transferring the collection bins / bales between the bin stores and the collection vehicle and returning the collection bins to the bin stores immediately after collections are complete. Bins shall not be stored outside of the property boundary at any time.

4.3 Waste Collection Time

Waste collection shall be undertaken during the following time-period, in accordance with EPA Victoria's 'Noise Control Guidelines':

— Between 7:00am and 8:00pm Monday to Saturday; and
— Between 9:00am and 8:00pm Sunday and public holidays.

Note: compaction should be carried out while the vehicle is moving, bottles should not be broken up at point site, and noisy verbal communication between operators should be avoided where possible.

5 Waste Management Responsibilities

5.1 Waste System User Responsibilities

Supermarket

All waste system users shall be responsible for adhering to the following waste sorting practices:

— General waste shall be placed within tied bags prior to being placed into the general waste collection bins provided.
— Organics shall be placed within tied approved compostable bags prior to being placed into the organics collection bins or shall be placed loosely into the organics collection bins. Organics shall not be placed within plastic bags.
— Recyclable containers (glass, aluminium, steel, and plastic recycles) shall be uncapped and rinsed prior to being placed loosely into the commingled recycling collection bins provided. Bagged commingled recycling is not permitted.
— Clean paper and cardboard and soft plastics shall be baled using the baler system provided (baler to be operated by trained personnel only).

Specialty Retail / Liquor

All waste system users shall be responsible for adhering to the following waste sorting practices:

— General waste shall be placed within tied bags prior to being placed into the general waste collection bins provided.
— Recyclable containers (glass, aluminium, steel, and plastic recycles) shall be uncapped and rinsed prior to being placed loosely into the commingled recycling collection bins provided. Bagged commingled recycling is not permitted.
— Clean paper and cardboard shall be placed loosely into the paper/cardboard collection bins provided. Bagged paper/cardboard is not permitted.
— Hard waste to be placed at the nominated location within the bin store.

Childcare / Medical / Commercial / Recreation

All waste system users shall be responsible for adhering to the following waste sorting practices:

— General waste shall be placed within tied bags prior to being placed into the general waste collection bins provided.
— Recyclable containers (glass, aluminium, steel, and plastic recycles) shall be uncapped and rinsed prior to being placed loosely into the commingled recycling collection bins provided. Bagged commingled recycling is not permitted.
— Clean paper and cardboard shall be placed loosely into the paper/cardboard collection bins provided. Bagged paper/cardboard is not permitted.
— Hard waste to be placed at the nominated location within the bin store.

5.2 Operator Responsibilities

Supermarket

The Operator shall be responsible for the following:

— Ongoing management of the waste system including the maintenance of the bin store and associated equipment and components, to the satisfaction of all waste system users and the relevant authority, and in accordance with the manufacturer's specifications.
— Engaging and managing the private waste collection contractor/s.
— Ensuring the waste collection contractor/s has access to the bin store during the scheduled waste collection time.
— Ensuring only trained personnel operate the baler.
— Publishing and distributing information to ensure that all waste system users are familiar about the waste system.
— Informing all waste system users that bagged recycling is not permitted.
— Developing and implementing adequate safe operating procedures (including the preparation of Safe Work Method Statements).
— Labelling/numbering the bins according to the property address to protect them from theft and vandalism.
— Servicing all public areas through sweeping and removal of litter on a regular basis.
— Preventing overfilled bins by keeping lids closed.
— Ensuring that bins are not removed from the site.
— Ensuring that the bin store, baler, and associated equipment and components are provided as per the design requirements outlined in Section 6.

Specialty Retail / Liquor

The Operator shall be responsible for the following:

— Ongoing management of the waste system including the maintenance of the bin store and associated equipment and components, to the satisfaction of all waste system users and the relevant authority, and in accordance with the manufacturer's specifications.
— Engaging and managing the private waste collection contractor/s.
— Ensuring the waste collection contractor/s has access to the bin store during the scheduled waste collection time.
— Publishing and distributing information to ensure that all waste system users are familiar about the waste system.
— Informing all waste system users that bagged recycling is not permitted.
— Developing and implementing adequate safe operating procedures (including the preparation of Safe Work Method Statements).
— Labelling/numbering the bins according to the property address to protect them from theft and vandalism.
— Servicing all public areas through sweeping and removal of litter on a regular basis.
— Preventing overfilled bins by keeping lids closed.
— Ensuring that bins are not removed from the site.
— Ensuring that the bin store and associated equipment and components are provided as per the design requirements outlined in Section 6.

Childcare / Medical / Commercial / Recreation

The Operator shall be responsible for the following:

— Ongoing management of the waste system including the maintenance of the bin store and associated equipment and components, to the satisfaction of all waste system users and the relevant authority, and in accordance with the manufacturer's specifications.
— Engaging and managing the private waste collection contractor/s.
— Ensuring the waste collection contractor/s has access to the bin store during the scheduled waste collection time.
— Publishing and distributing information to ensure that all waste system users are familiar about the waste system.
— Informing all waste system users that bagged recycling is not permitted.
— Developing and implementing adequate safe operating procedures (including the preparation of Safe Work Method Statements).
— Labelling/numbering the bins according to the property address to protect them from theft and vandalism.
— Servicing all public areas through sweeping and removal of litter on a regular basis.
— Preventing overfilled bins by keeping lids closed.
— Ensuring that bins are not removed from the site.
— Ensuring that the bin store and associated equipment and components are provided as per the design requirements outlined in Section 6.

5.3 Waste System Education

The Operators shall ensure that all waste systems users are informed about the development's waste system, including where and how to correctly dispose of each waste stream. It is recommended that this Waste Management Plan is electronically provided to all relevant personnel.

The Operators shall provide educational material to inform all waste system users about the development's waste system and advise all waste system users how to correctly separate and dispose of each waste stream with care, to minimise waste sent to landfill and reduce the contamination of recyclables.

5.4 Waste Management Plan Revisions

From time to time, due to changes in legislative requirements, changes in the development's needs and/or waste patterns (such as waste composition, volume, or distribution), or to address unforeseen operational issues, the Operators shall be responsible for co-ordinating the necessary Waste Management Plan revisions, including (on an as-required basis):

— A waste audit and new waste management strategy.
— Revision of the waste system (bin size / quantity / waste streams / collection frequency / update of equipment).
— Re-education of users.
— Any necessary statutory / regulatory requirements / approvals.

6 Design Requirements

6.1 Bin Store Design Requirements

All bin stores shall be designed to meet the following requirements:

— Designed to comply with Building Code of Australia (BCA) and all relevant Australian Standards.
— Secure and screened from public view.
— Allow storage of all collection bins on site at all times.
— Allow easy access to bins for all waste system users.
— Allow direct and convenient transfer of bins to/from the collection point.
— Bins and equipment labelled as per the property address.
— Appropriately screened to prevent unsightly impacts on amenity.
— Provided with artificial light to enable bin store users to dispose of waste safely and appropriately.
— Sized to accommodate all waste arising on the premises together with any associated waste management equipment
— Concrete (or similar) floor finished to a smooth, even surface, covered at the intersection of walls and plinths.
— Ventilated in accordance with the requirements of the Building Code of Australia and AS1668.2.
— Ventilation openings protected against flies and vermin.
— Provided with tight-fitting doors.
— Provided with adequate bin washing facilities (wall-mounted hot and cold mixing tap with floor graded to wastewater drain connected to litter trap) in accordance with the relevant authority requirements.

6.2 Bin Colour and Signage Requirements

Bin Colour

It is recommended that all privately supplied collection bins for the supermarket be provided in the following colours:

— General waste collection bins: dark green or black body with red lid.
— Organics collection bins: dark green or black body with lime green lid.
— Commingled recycling collection bins: dark green or black body with yellow lid.
— Paper and cardboard collection bins: dark green or black body with blue lid.

Signage

All bin stores shall be provided with Sustainability Victoria or equivalent signage (visit: https://www.sustainability.vic.gov.au/recycling-and-reducing-waste/waste-systems-in-residential-commercial-and-industrial-buildings/waste-signage).

7 Contact Details

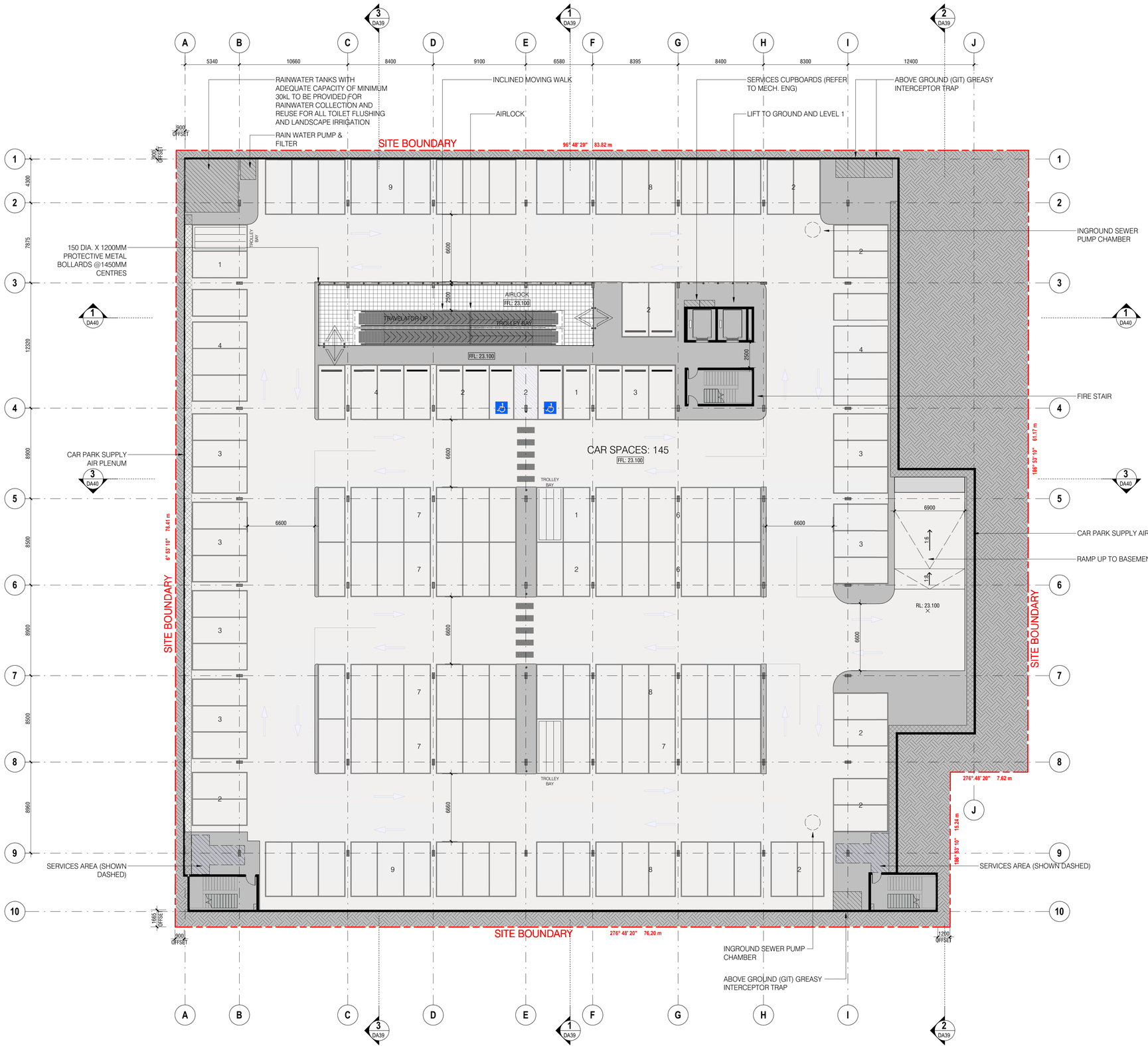
7.1 Contractor and Supplier Details

Table 7.1 below includes a complimentary listing of contractors and suppliers. The Project Principal shall not be obligated to procure goods / services from these companies. Ratio Consultants does not warrant or make representations for the goods / services provided by these contractors and suppliers.

Table 7.1: Contractor and Supplier Details

Service	Contractor / Supplier	Phone	Website
Private Waste Collection	Cleanaway	13 13 39	www.cleanaway.com.au
	JJ Richards	03 9794 5722	www.jjrichards.com.au
	SUEZ	13 13 35	www.suez.com.au
	Veolia	132 955	www.veolia.com.au
Baler Supplier	Trethewey Industries	02 6734 5403	www.autobaler.com.au
	Wastech	1800 465 465	www.wastech.com.au
Bin Cleaning Contractors	The Bin Butlers	1300 788 123	www.thebinbutlers.com.au
	Calcorp Services	1800 225 267	www.calcorpservices.com.au
	Kerbside Clean-A-Bin	03 9830 7381	www.kerbsidecleanabin-srp.com.au
	WBCM Environmental Australia	1300 800 621	www.wbcm-aust.com.au

Appendix A **Plans Assessed:**



DEVELOPMENT SUMMARY

superlot area	6290.0m² approx.		
	(+) new	cars required	
BASEMENT FLOOR			
woolworths supermarket DTB	107.0 m²	6 cars	*(5.0/100m²)*
GROUND FLOOR			
supermarket	3579.0 m²	179 cars	*(5.0/100m²)*
retail premises	577.0 m²	29 cars	*(5.0/100m²)*
bottle shop	138.5 m²	7 cars	*(5.0/100m²)*
total ground floor area	4401.5 m²	221 cars req	
TOTAL RETAIL CARS PROV.	221 cars	prop. ratio	*(5.0/100m²)*
FIRST FLOOR			
restricted recreation facility (gym)	384.0 m²	12 cars	*(3.0/100m²)*
office	368.0 m²	12 cars	*(3.0/100m²)*
childcare facility (110 child)	1485.0 m²	24 cars	*.22/child*
medical centre	425.0 m²	13 cars	*(3.0/100m²)*
total first floor area	2662.0 m²	61 cars req	
TOTAL NON-RETAIL CARS PROV.	61 cars		
TOTAL AREA	7063.5 m²	282 cars req	
basement 1 carpark	133 cars		
basement 2 carpark	145 cars		
TOTAL CARS	278 cars	prop. ratio	*(3.9/100m²)*
TOTAL MOTORCYCLES	10		
TOTAL BICYCLES	23		

NOTE: ALL EXISTING AREAS ARE APPROXIMATE ONLY. RE-ESTABLISHMENT SURVEY TO BE UNDERTAKEN TO CONFIRM ALL AREAS

ACCESSIBLE ENERY AND WATER METERING AND MONITORING SYSTEMS FOR ALL COMMON USES, MAJOR USES AND MAJOR SOURCES

no.	date	ISSUE / revision	by

WEST FOOTSCRAY VILLAGE - MIXED USE DEVELOPMENT

495-507 BARKLY ST, FOOTSCRAY, VIC, 3011

WOOLWORTHS GROUP

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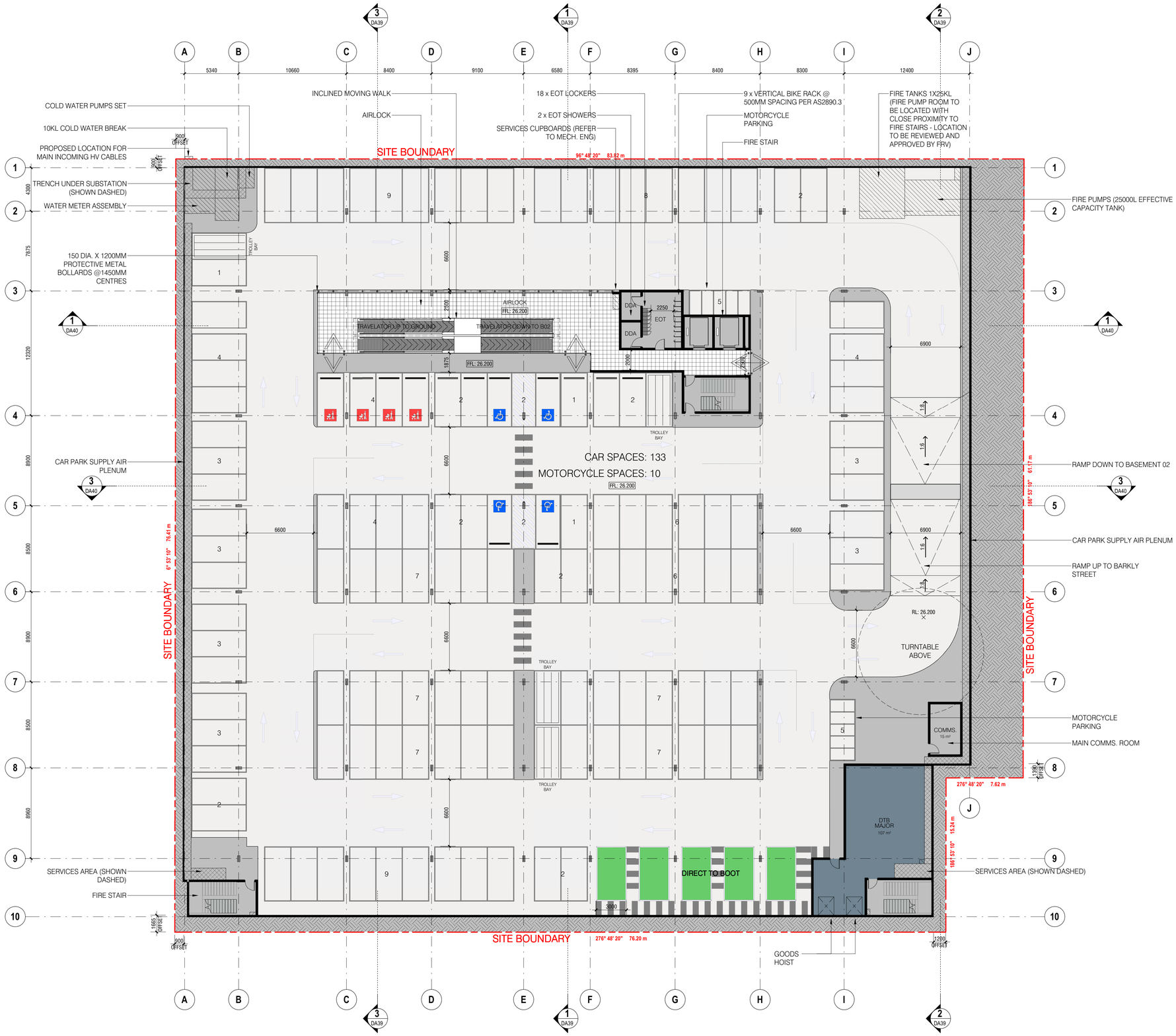
PROPOSED BASEMENT 02 PLAN

TOWN PLANNING

project	drawing no.	issue
2021-363	DA33	
scale @ A1	designed	checked
1 : 200	FMO	JWR



DEVELOPMENT SUMMARY

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PROPOSED BASEMENT 01 PLAN

TOWN PLANNING

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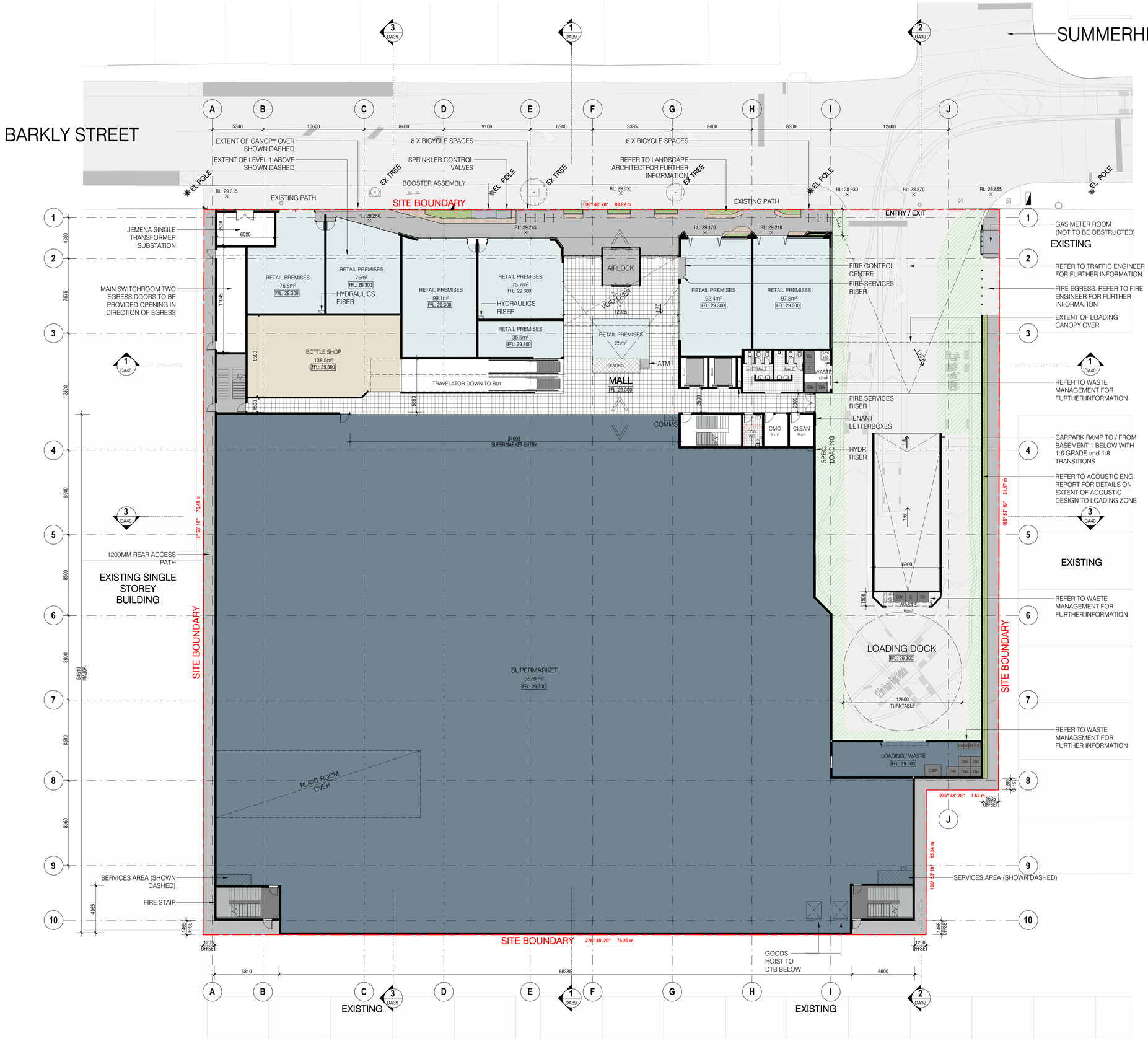

DEVELOPMENT SUMMARY

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basement 2 carpark	145 cars			
TOTAL CARS	278 cars	prop. ratio		*[2.9/100m²]*
TOTAL MOTORCYCLES	10			
TOTAL BICYCLES	23			

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ACCESSIBLE ENERY AND WATER METERING AND MONITORING SYSTEMS FOR ALL COMMON USES, MAJOR USES AND MAJOR SOURCES

OUTDOOR LIGHTING WILL COMPLY WITH AS/NZS 4282:2019. COMPLIANCE WILL BE ACHIEVED AS PER COLUMN 3 OF TABLE 2.1 OF AS/NZS 4282:2019

ALL LIGHTS WILL BE DESIGNED TO BE FLICKER FREE WITH LIGHTING QUALITY TO COMPLY WITH AS/NZS 1680

VENTILATION SYSTEMS DESIGN TO MEET ASHRAE62.1-2003. OUTSIDE AIR RATES TO BE IMPROVED BY AT LEAST 50% OVER MINIMUM REQUIREMENTS AS DETAILED IN AS1668.2

WATER FIXTURES TO WELS RATING :

-KITCHEN TAPS:	5 STAR WELS RATING
- BATHROOM TAPS:	5 STAR WELLS RATING
- DISHWASHER:	5 STAR WELS RATING
- WC	4 STAR WELS RATING
- SHOWERS	3 STAR WELS RATING (≤ 7.5 L/MIN)
-WASHING MACHINE	4 STAR WELS RATING

50M² RAINGARDEN ON LEVEL 1 FOR BIORETENTION / BIOLFILTRATION

no.	date	ISSUE / revision	by

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PROPOSED GROUND FLOOR PLAN

TOWN PLANNING

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2021-363	DA35	
scale @ A1	designed	checked
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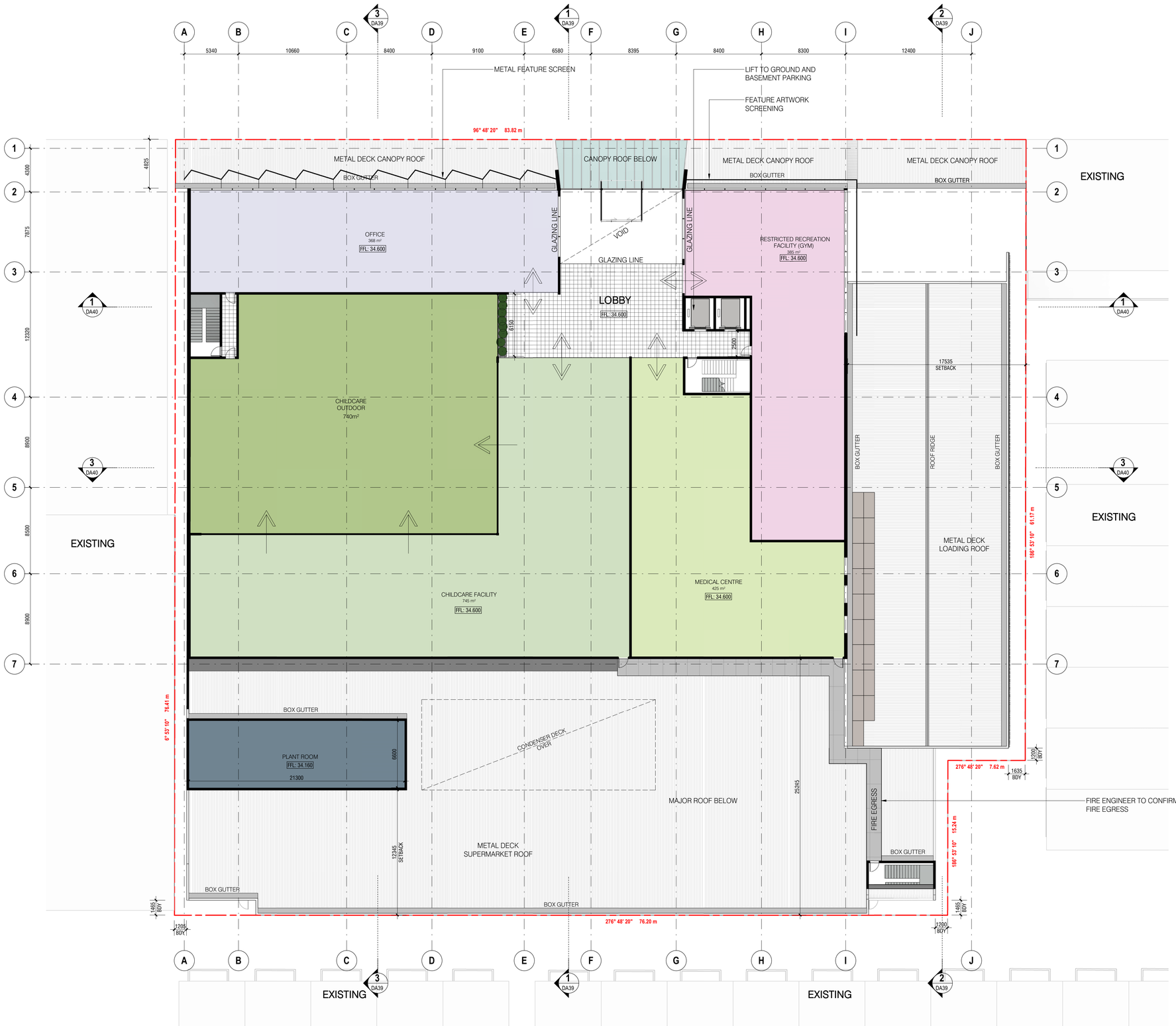

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-WASHING MACHINE	4 STAR WELS RATING

50M² RAINGARDEN ON LEVEL 1 FOR BIORETENTION / BIOLFILTRATION

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PROPOSED LEVEL 01 PLAN

TOWN PLANNING

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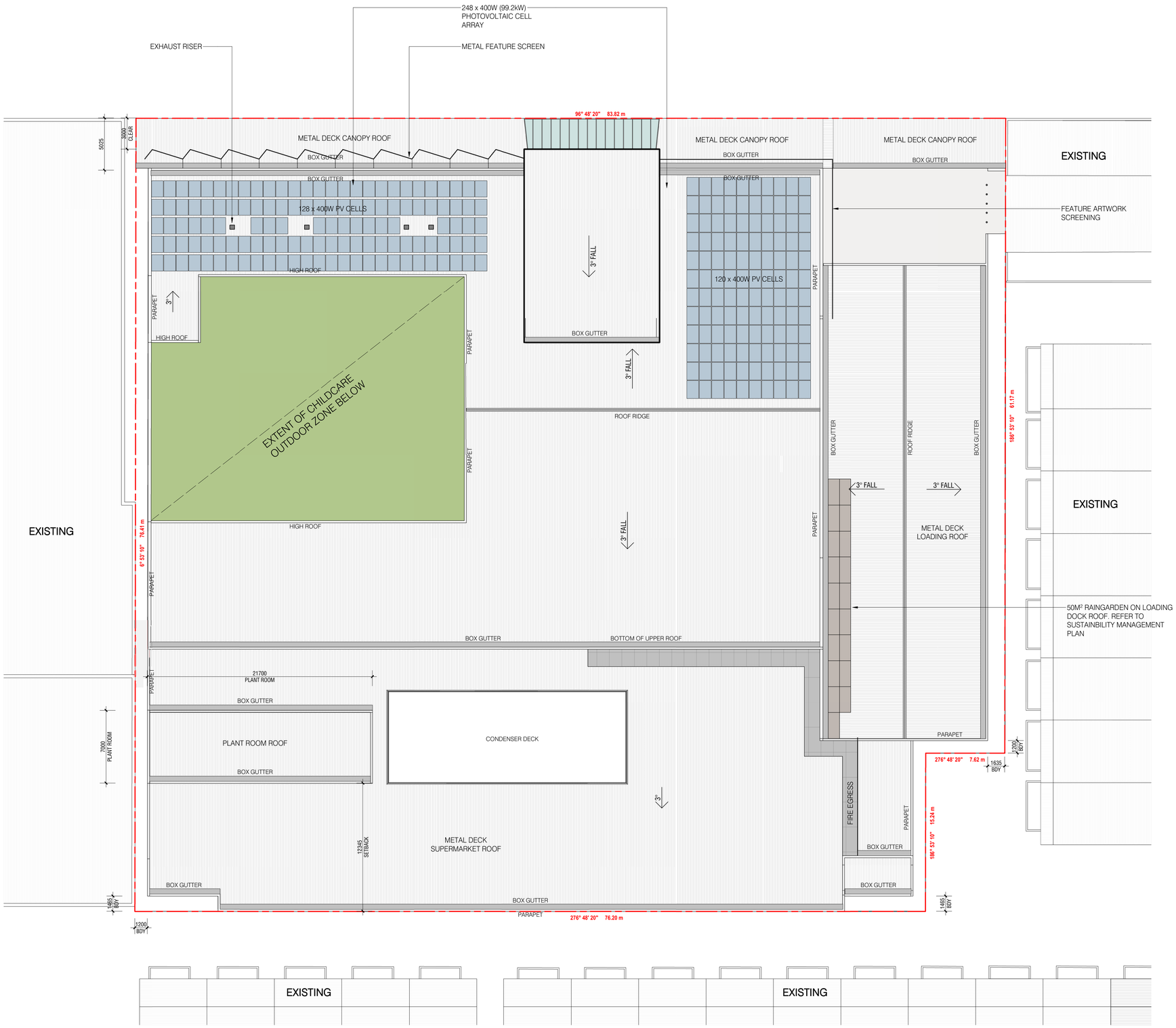

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PROPOSED ROOF PLAN

TOWN PLANNING

project	drawing no.	issue
2021-363	DA37	
scale @ A1	designed	checked
1 : 200	FMO	JWR