Lot 47 (No. 2) Orton Road **Precinct Structure Plan**

June 2025 | 23-210

element. | PART OF SLR

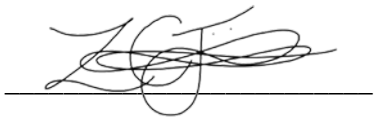
Endorsement Page

This structure plan is prepared under the provisions of the City of Nedlands Local Planning Scheme No. 3.

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

11 July 2025

Signed for and on behalf of the Western Australian Planning Commission



An officer of the Commission duly authorised by the Commission pursuant to section 24 of the *Planning and Development Act 2005* for that purpose, in the presence of:

Rhianne Fiander Witness

14 July 2025 Date

14 July 2035 Date of Expiry

Acknowledgment of Country

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

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

Document ID: '/Volumes/Graphics/2023/23-210 Alinea PSP/00 Report/00 InDesign/23-210 Alinea Structure Plan F4 240305 Folder/23-210 Alinea Structure Plan F4 250617.indd'

Issue	Date	Status	Prepared by	Approved by	Graphics	File
1	05.03.24	Working Draft 50%	Campbell Green, Fiona Atkins	Alison Healey	MS	D1
2	11.03.24	Draft	Campbell Green, Fiona Atkins	Alison Healey	MS	D2
3	09.05.24	Final	Campbell Green, Fiona Atkins	Alison Healey	MS	F
4	17.06.24	Final	Campbell Green, Fiona Atkins	Alison Healey	SA	F1
5	18.06.24	Final	Campbell Green, Fiona Atkins	Alison Healey	MS	F2
6	05.06.25	Final	Campbell Green	Alison Healey	MS	F3
7	17.06.25	Final	Campbell Green	Alison Healey	CS	F4

Element Advisory Pty Ltd (Element Advisory)
Whadjuk Country. L1, 500 Hay Street. Subiaco WA 6008.
www.elementadvisory.com.au © Element Advisory

Contents

TABLE OF AMENDMENTS

Amend No:	Summary (in bullet points)	Date approved by the WAPC
1		
2		
3		
4		

EXECUTIVE SUMMARY

Vision of plan

To create a welcoming, inclusive and supportive community through the delivery of much needed supported seniors housing and other uses that benefit the community in a way that connects with nature and adds to the diversity and vibrancy of the growing urban area, while supporting ageing in place.

Precinct Objectives

1. **Deliver New Seniors Housing:** To address a shortfall in demand and provide seniors housing at a modern standard to support ageing in place.
2. **Community Benefits and Services:** To maximise the opportunity over time for a range of possible community services to be provided within the PSP and local community including aged care, disability support and other charitable endeavours.
3. **Complement the Wider Urban Area:** Urban design that enables a level of density and integration to add to and complement the objectives of the Montario Quarter Structure Plan and general urban community growth objectives.
4. **Environment and Sustainability:** Respect and promote the surrounding natural environment, integrating the accommodation within the existing landscape, while incorporating environmentally sustainable building practices.

Executive Summary Table

Item	Data	Structure Plan Ref (section no.)
Total area covered by the structure plan	1.91 hectares	Part One – Implementation – Structure Plan Area and Operation
Total estimated lot yield	1	Part One – Implementation – Structure Plan Area and Operation
Estimated number of dwellings	200	Part One – Implementation – Structure Plan Area and Operation
Estimated residential site density	104	Part One – Implementation – Structure Plan Area and Operation
Estimated population	300	Part Two – Explanatory Section – Community Context
Estimated commercial floor space (incidental)	Café 240m^2 Office 150m^2 Community/ recreation 1,080m^2	Part One – Implementation – Structure Plan Area and Operation

PART ONE – IMPLEMENTATION

Precinct Structure Plan Area and Operation

This Precinct Structure Plan (PSP) applies to Lot 47 (No.2) Orton Road (the 'subject site' or 'Precinct') and is located within the City of Nedlands. The subject site has been owned by registered charity Alinea Inc. for several years. With the existing development approaching the end of its useful life, the subject site has been identified as an opportunity for redevelopment.

The subject site has a total land area of 1.91 Hectares.

Table 1 (below) provides a summary of the residential, commercial and communal floorspace yields expected to be facilitated by this PSP.

Table 1. Precinct Summary Table

Item	Data
Precinct Structure Plan Area	
Total Area Covered by Precinct Structure Plan (approximately)	1.91 Ha
Estimated Number of Dwellings	200
Non-Residential Floorspace (Approx.)	
Cafe Floorspace	240m^2
Office Floorspace (for internal Alinea staff only)	150m^2
Community / Recreation Floorspace	1,080m^2
Total	**1,470m^2**

The PSP comes into effect on the day it is approved by the WAPC, the date of which will be outlined on the endorsement page. As per Schedule 2, Part 4 of the Planning and Development (Local Planning Schemes) Regulations 2015, from the date of endorsement this PSP is to have effect for a period of 10 years unless otherwise specified by the WAPC. Upon adoption, the PSP will be a 'due regard' document, with assessing bodies required to have regard to the provisions of the document when assessing subsequent development and subdivision applications within the Precinct area.

Purpose

This PSP seeks to facilitate redevelopment of the subject site to provide these expanded uses through providing modern and affordable seniors housing (multiple dwellings) and ancillary uses for seniors.

The subject site is zoned as 'Urban Development' under the City of Nedlands' (the City) Local Planning Scheme No.3 (LPS3), and therefore requires the preparation of a Precinct Structure Plan to guide its redevelopment.

The key scope items for the Precinct will include:

- 200 apartments split over five buildings
- Office and administration area for staff
- Community amenities and residents club
- Café / Food and Beverage
- Rooftop solar panels with battery.

Table 2. Proposed Yield

Item	Block A	Block B	Block C	Block D	Block E	Subtotal
No. Apartments	25	25	40	60	50	200
No. Levels (Max.)	3	3	5	8	6	
Stage	1	1	2	3	4	

Subdivision and Development Controls

General Provisions

a. Where the PSP is inconsistent with the City's policies, the PSP shall prevail to the extent of any inconsistency.
b. In conformity with Clause 1.2.3 of Residential Design Codes Volume 2 – Apartments (R-Codes, Vol. 2), this PSP contains provisions that amend or replace Acceptable Outcomes set out in Part 2 of the R-Codes Volume 2.
c. The provisions provided within this PSP detail specific Acceptable Outcomes of the R-Codes, Vol.2 that have been amended or replaced by this PSP. For the remaining elements which are not addressed by this PSP, Vol.2 of the R-Codes shall remain applicable.

Variations to the Development Controls of this PSP may be approved through a Development Application, provided that the subject development achieves the objectives of this PSP and the relevant objectives and principles of R-Codes Vol.2 (as applicable).

Land Use Zones and Reserves

Zones / Precincts

The subject site is to be zoned Residential under this PSP and subject to the following land use vision:

The PSP envisages the development of dwellings and/or care for aged, dependent or disabled persons, as well as community home care services and supported employment opportunities for people with a disability. The development is also intended to provide a variety of ancillary amenities and facilities which are provided to support residents, staff and/or visitors and not intended to be utilised as standalone land uses (e.g. café and health and wellness for residents, staff and visitors not provided for the general public).

Density and Development

Density and R-Codes

This PSP allows for the creation of an independent living complex in the form of a Residential/Mixed-Use Precinct in accordance with the Provisions of SPP 7.2 – Precinct Design Guidelines. As there will be no subdivision, the whole subject site will be zoned as Residential under this PSP. As this PSP provides the built form controls, the applicable density code is R-AC0.

Development Provisions

General Precinct Provisions

Development Provision	Controls
Building Height	**1.1** Maximum height eight (8) storeys. **1.2** Maximum height of eight (8) storeys should be located in the north-east and gradually transition to three (3) storeys in the south-west or where directly interfacing with existing residential development.
Primary Setbacks (Orton Road)	**1.3** Minimum two (2) metres to Orton Road
Western Setback	**1.4** Minimum two (2) metres
Eastern Setback (Selby Street)	**1.5** Minimum eight (8) metres
Northern Setbacks	**1.6** Minimum eighteen (18) metres *
Plot Ratio	**1.7** Minimum 2.0 **
* Setbacks are applicable to the built form of habitable buildings. Non habitable development may be located within this area where it would not have a determinantal impact the intended built form outcomes, create bushfire risk or adversely affect the amenity of the area. ** Plot ratio is measured across entire site.	

Refer to Figure 1 – Building Height Transition Diagram

Please see Precinct Structure Plan diagrams for guidance relating to the proposed layout.

Development Layout

Subdivision

There will be no subdivision of the subject site nor ceding of land.

Interface with Adjoining Areas

The PSP seeks to align with modern development standards seen in the redevelopment of surrounding areas, particularly Montario Quarter. Building blocks are sized and positioned to respect the Precinct's intended function and facilitate an independent living community.

Lower scale development at the interface of Montario Quarter (abutting Orton Road), has been adopted to complement the street frontage and align to the directly adjacent townhouses.

Larger scale development has been focussed along Selby Street, which will be sheltered by existing vegetation and adjacent to a major traffic network. The considered placement of the larger scale development away from medium density development ensures that the proposal will interface with the surrounding land uses in a sensitive manner.

Figure 1. Building Height Transition Diagram

Other Requirements

Bushfire protection

This PSP is accompanied by a Bushfire Management Plan (BMP) attached at Appendix F. Future development within the Precinct is to be in accordance with the recommendations of this as amended from time to time.

Tree Retention and Protection

Tree retention and new tree planting shall support the achievement of significant urban canopy and natural shade coverage within the PSP area. An arborist tree survey has been completed by Paperbark Technologies to accompany the PSP. The tree survey provides retention values of all existing vegetation on the subject site and establishes Tree Protect Zones and Structural Root Zones to be adhered to for subsequent development, where relevant trees are to be retained.

Reasonable efforts will be undertaken during subsequent development to retain trees of greater retention value. Factors that may impact retention include natural attrition, unintended impacts of servicing requirements, bushfire risk management, public safety, ability to trim and prune trees and development requirements. In such cases, trees may be removed where appropriately justified in accompanying development applications. As illustrated below, considerable effort has been applied by the project team to create a masterplan which seeks to minimise the impact to trees regarded as having a 'high retention value'.

Trees with greater retention value have been mapped and are shown at Figure 4.

Refer to Appendix B – Arboricultural Tree Survey Report

Additional Details

Information to be submitted with an application

Additional Information / purpose	Approval stage	Responsible agency (consultation required)
Storm Water Management Plan	Development Application	City of Nedlands
Updated Bushfire Management Plan to confirm compliance with attached BMP	Develpment Application	City of Nedlands, Department of Planning, Lands and Heritage and Department of Fire and Emergency Services
Landscaping Plan to detail design of tree canopy and deep soil areas onsite	Develpment Application	City of Nedlands

Structure Plan Map

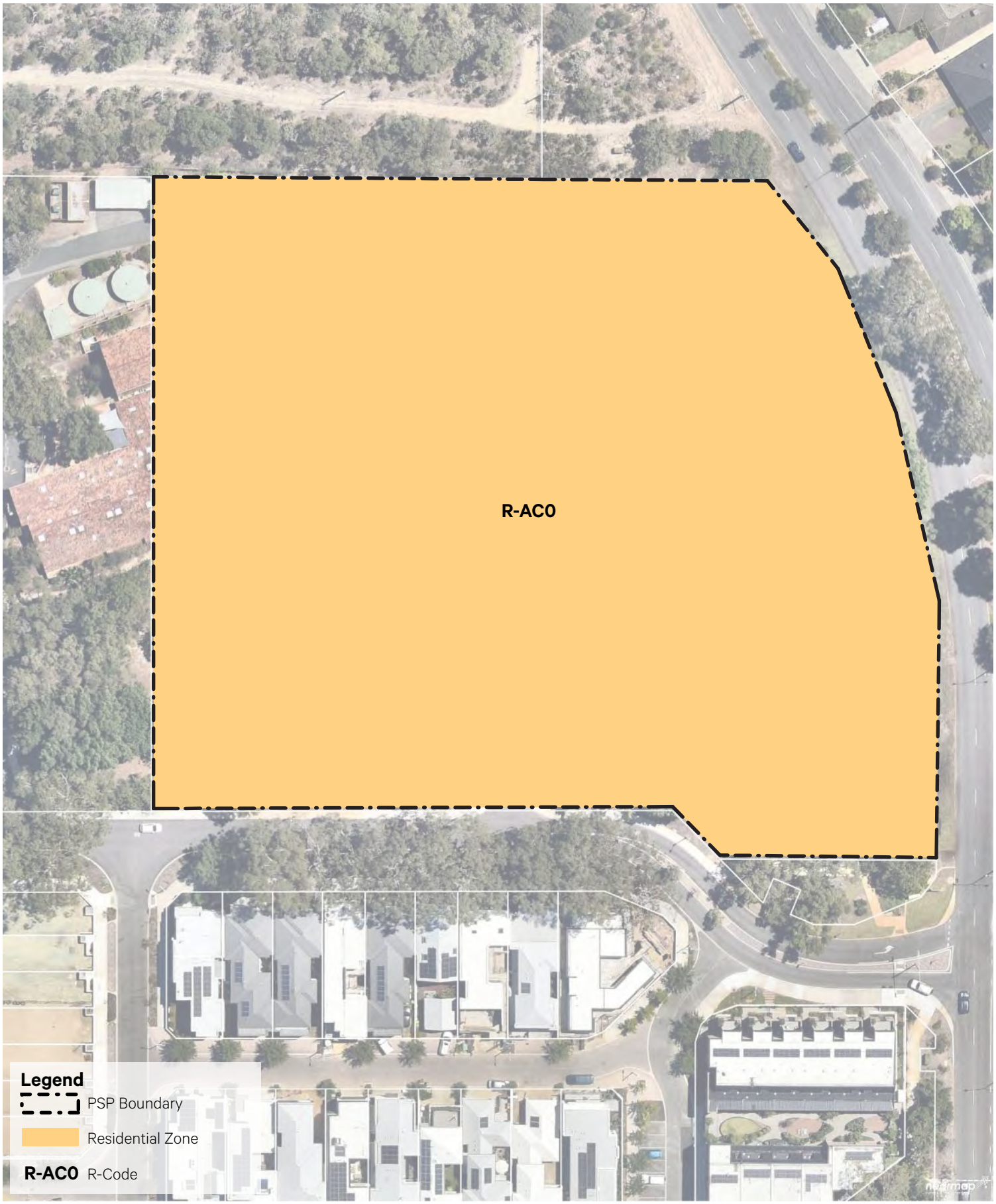


Figure 2. Zoning and Density

PART TWO – EXPLANATORY SECTION

1. Introduction

1.1 Precinct Type

The Precinct is best defined as a Residential/Mixed Use Precinct under SPP 7.2. Pursuant to SPP 7.2, the site has been identified as an area suitable for increased residential density. This Precinct represents the redevelopment of a single site which is located within an Urban Development Zone under the local planning framework and is co-located with Metropolitan Redevelopment Authority (MRA) areas.

This PSP will ensure appropriate development aligns with the Residential/Mixed Use category by responding to the Planning and Design Focus objectives for the precinct type under Part 2 of SPP 7.2, shown below.

1. Guiding subdivision/amalgamation and development to support increased residential density and high-quality built form outcomes.
2. Enhancing urban amenity by detailing lot/building orientation and lot access arrangements that support the future residential character of the precinct.
3. Strengthening green networks through the enhancement of the urban tree canopy and improved interfaces between the public realm and private property.
4. Ensuring street design supports safe access and movement, public transport use, walking and cycling.

This PSP will appropriately respond to the above Planning and Design Focus objectives through facilitating the following:

- Provision of modernised, high-quality supported residential apartments for seniors at a greater density than existing development;
- Enhanced urban amenity through mixed commercial uses (staff administration office and café) and active landscaped areas for the exclusive use of residents and their visitors;
- Enhanced walkability through appropriately located buildings centred around a common active space; and
- Providing a high-quality Transit-Oriented-Development within an 800 metre catchment of high-frequency bus routes, the Fremantle Train Line and new cycling infrastructure.

1.2 Precinct Plan Form

This document has been prepared in the form of a PSP. In accordance with Table 2 of SPP 7.2, the proposed PSP is seeking to include provisions which prescribe preferred land uses, subdivision guidance, built form and public realm design and infrastructure coordination.

1.3 Precinct Boundary

The precinct boundary has been defined as the lot boundaries of Lot 47 (subject site) in response to tenure and planning framework considerations. The subject site is zoned Urban Development under the City of Nedlands Local Planning Scheme No. 3. The southern portion of the subject site was previously governed under the Shenton Park Rehabilitation Hospital Improvement Plan, however this boundary is being realigned through an Improvement Scheme amendment. The Precinct boundary is also held under sole ownership of Alinea, avoiding any potential conflicts affecting future development due to fragmented ownership.

Refer to Figure 3 – Precinct Boundary

These considerations isolate the subject site as a redevelopment site warranting a Precinct Structure Plan.

Figure 3. Precinct Boundary

2. Physical Context

2.1 Physical Context

2.1.1 Regional and Local Context

The subject site is approximately 5km from the Perth CBD located in the City of Nedlands local government area. The site accommodates the Quadriplegic Centre, which has been operating since the 1960s and provides rehabilitative care and permanent accommodation to those living with quadriplegia and other serious spinal injuries. The site is bound by Selby Street to the east, the Shenton Park Hospital Redevelopment Area to the south, additional Alinea operations to the west and a large parcel of land housing native vegetation to the north.

Refer to Figure 4 – Context Plan

The subject site is also surrounded by vegetation and trees of varying significance. These trees have been surveyed by Paperbark Technologies as part of the Arboreal Tree Survey attached at Appendix B. Figure 5 shows the trees identified to be of the highest retention value.

Refer to Figure 5 – Tree Retention Value Diagram

2.1.2 Surrounding Area and Land Use

The subject site is situated within the Shenton Park locality and in proximity to the low-density suburban area of Daglish. The subject site is located directly north of the Shenton Park Hospital Redevelopment area and will form a key part of the evolving community being redeveloped around it.

The area is in a state of transition, with redevelopment in the immediate vicinity of the subject site largely underway. Further west, the local area houses older commercial and industrial uses yet to be redeveloped.

The subject site is also in proximity to community centres and infrastructure including Montario Quarter, Shenton Park Station, Shenton College and various public parks all within an 800 metre radius. The Precinct's connectivity to these community features and infrastructure is a significant urban design consideration in the PSP.

This PSP presents an opportunity to offer supported housing in a lease purchase model to accommodate an ageing population within a vibrant and evolving community centre.

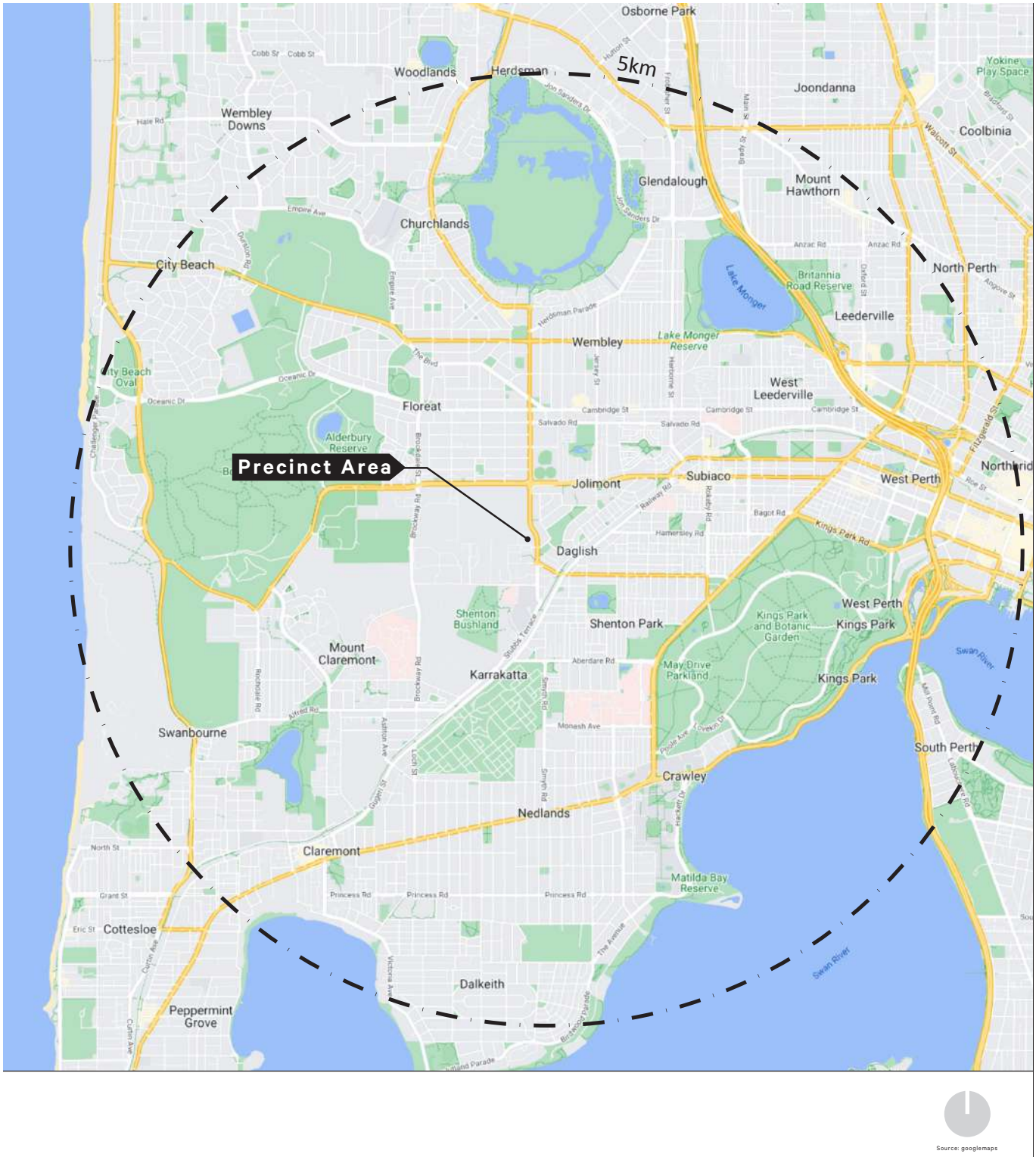


Figure 4. Context Plan

Figure 5. Tree Retention Value Diagram

2.1.3 Tenure, Ownership and Buildings

The site accommodates the Quadriplegic Centre, which has been operating since the 1960s and provides rehabilitative care and permanent accommodation to those living with quadriplegia and other serious spinal injuries. The centre has now reached the end of its useful life, with the Department of Health implementing the decommissioning phase. There are currently only 12 remaining patients, with a new Centre due to be built by 2025/26. At this time all remaining residents will be transitioned into the new facility.

The subject site and neighbouring Alinea landholdings are owned in freehold by Alinea Inc.

The sole ownership of the subject site allows for minimal fragmentation of land and will assist in the facilitation of the Precinct vision through redevelopment.

2.2 Physical Infrastructure and Services

2.2.1 Transport Infrastructure

The site is well connected to major activity centres of Perth such as the Perth CBD, the Subiaco City Centre and the Fremantle City Centre by both public and private transport infrastructure. The Precinct is connected by main regional roads to these activity centres, as well as being within proximity to high frequency bus routes and the Fremantle Train Line.

The Precinct is immediately adjacent to Selby Street, which is accessed via Orton Road. Selby Street connects the Precinct to Stubbs Terrace and, by extension, Railway Road and Stirling Highway, providing regional connection east and west.

Table 3. Road Hierarchy

Street Name	MFRH Category
Selby Street (North)	Distributor A
Selby Street (South)	Distributor B
Stubbs Terrace	Distributor B
Railway Road	Distributor A
Stirling Highway	Primary Distributor

The Precinct is serviced by the 999 and 998 bus routes which provide a high-frequency service in a circular route, operating as far north as Stirling and as far south as Murdoch. These bus routes allow the Precinct to have easy access to all the main activity centres within the central Perth Metropolitan Area. The Precinct is also within 400m of Hay Street which is serviced by the 28 bus route, which provides a more localised service along Hay Street, providing access to the Subiaco town centre.

As the Precinct will function to service an ageing population, it is acknowledged that the provision of active transport infrastructure such as bike and pedestrian paths is less of a priority for connectivity. Instead, this PSP has given significant regard to ensuring high-amenity connections to a variety of public transport options.

2.2.2 Utility Servicing

An engineering servicing report has been undertaken by Pritchard Francis (Refer to Appendix C). A summary has been provided below.

Utility	Advice
Sewer	Connection to reticulated sewerage can be established at the south-eastern corner of the subject site. The existing connection is considered suitable for the envisioned development under this PSP. However, consultation with Water Corporation is recommended to confirm hydraulic load capacity.
Water	The Precinct can be connected to reticulated water supply via a connection on the eastern edge of Selby Street. This location features an existing fire service and domestic service connection. For future development, engagement with a hydraulic consultant will be required to confirm the capacity of each individual building, it is assumed redevelopment will require the use of tanks and pumps to achieve compliance.
Power	The electrical supply substation located in the northern side of the site and is the only source of supply for Lots 47, 48 and 49, as well as a district transformer located in the south eastern corner. A new LV point of supply will be required for Lot 47 and it is assumed that Lots 48 and 49 can remain energised on their current circuits.
Gas	There is an existing gas infrastructure on the eastern side of the site (50mm PVC), which services lots 47, 48, and 49 (adjacent lots to the west of Lot 47). It is recommended that an individual supply connection is created for Lot 47 as part of future redevelopment.

2.3 Movement

2.3.1 Vehicle Movement

The Precinct is located along Selby Street, a vital distributor road linking traffic between Shenton Park and neighbouring suburbs. Orton Road acts as the local access road carrying traffic from Selby Street into the Precinct.

Upgrades to the existing road infrastructure is not required to facilitate the Precinct. However, additional crossovers on Orton Road will be constructed to provide convenient access to the at-grade parking areas. This additional infrastructure will allow for the minimisation of local traffic congestion by maximising vehicle entry points.

2.3.2 Pedestrian and Bicycle Access

Existing active transport infrastructure is lacking in and around the Precinct. It is acknowledged that the Shenton Park Hospital Redevelopment includes new pedestrian and bike-friendly infrastructure allowing for safer access to public transport services.

Connectivity to this new active transport infrastructure (existing pathways), recently constructed as part of the Montario Quarter development to the south, is a primary consideration of the Precinct. Therefore, planning for safe, high-amenity and convenient pedestrian connections to this public transport infrastructure is given significant regard.

2.3.3 Public Transport

The proposed development is situated approximately 350 metres from the nearest bus stop along Selby Street, which services the 998 bus route to Fremantle Station. Additionally, the bus stop located across the road provides access to the 999 bus route to Fremantle Station. The bus stop located across Selby Street also serves the 28 bus route, facilitating transportation for patrons traveling between Claremont Station and Shenton Park Train Station.

Shenton Park Train Station is approximately 800m south of the Precinct and can be reached via a 10–minute walk or a 5–10 minute bus journey on the 999 bus route. The train station is serviced by the Fremantle Line which connects Perth City with Fremantle and the new Airport Line which connects Claremont Station and Perth Airport.

3. Community Context

An analysis of the demographic profile has been provided to support the PSP. The local demographic data of the Subiaco and Shenton Park Statistical Area (Study Area). The Subiaco and Shenton Park Statistical Area is the combined census data of the Subiaco and Shenton Park localities, as the two most relevant localities to the subject site. Demographics of the Study Area has been compared to the wider Inner Perth Region and Greater Perth demographic profiles. The demographic analysis has illustrated the following points:

- The Study Area features a relatively higher median age compared to Metropolitan Perth;
- Despite high housing costs, housing affordability is still stable in the Study Area due to high personal incomes. However, personal incomes drop significantly after the age of 60, becoming closer to State average levels.
- The Study Area exhibits significantly less ownership among Multiple Dwelling typologies and much higher rates of renting;
- The propensity for residents to live in Multiple Dwelling developments is increasing.

3.1 People

The median age of the Study Area residents, at 41 years, indicates an ageing population in comparison to the Inner Perth and Greater Perth region, where the median age stands at 38 years old and 37 years old, respectively.

Table 4. Age Ranges by Population

Age Range	Study Area %	Inner Perth %	Greater Perth %
0–4 years	4.7	4.5	6.1
5–9 years	5.3	5.0	6.4
10–14 years	5.8	5.5	6.4
15–19 years	4.6	5.6	5.8
20–24 years	5.8	7.3	6.3
25–29 years	7.5	8.5	6.8
30–34 years	7.8	8.6	7.6
35–39 years	7	7.8	7.7
40–44 years	7	6.6	6.8
45–49 years	6.3	6.4	6.5
50–54 years	6.1	6.5	6.4
55–59 years	5.8	5.8	5.9
60–64 years	5.7	5.4	5.4
65–69 years	5.9	4.8	4.8
70–74 years	5.5	4.2	4.2
75–79 years	3.8	3.0	2.9
80–84 years	2.9	2.1	2
85 years and over	2.5	2.4	1.9

Table 5 illustrates how the Study Area has a noticeably higher proportion of the population over the age of 60 when compared to Inner and Greater Perth. This suggests an ageing population in which smaller, more affordable dwellings may be more suitable. The Precinct seeks to accommodate this ageing population through the provision of approximately 200 supported dwellings, as well as dedicated support services for elderly residents.

3.2 Housing

3.2.1 Housing Typology

Traditionally, the housing stock in the area surrounding the Precinct has been characterised by single detached homes on larger suburban blocks (see Graph 1).

However the Study Area, and the Inner-Perth region in general, is experiencing an uplift in the availability of apartment dwellings. This shows a growing acceptance of apartment dwellings in the region this PSP seeks to service (see Table 5).

In addition, the Montario Quarter redevelopment located immediately to the south of the Precinct, the Study Area and surrounds has seen multiple approvals for residential and mixed use developments providing apartments. This PSP has considered the uplift in apartment living and is seeking to facilitate development which will allow a specific age demographic to have access to supported apartment living.

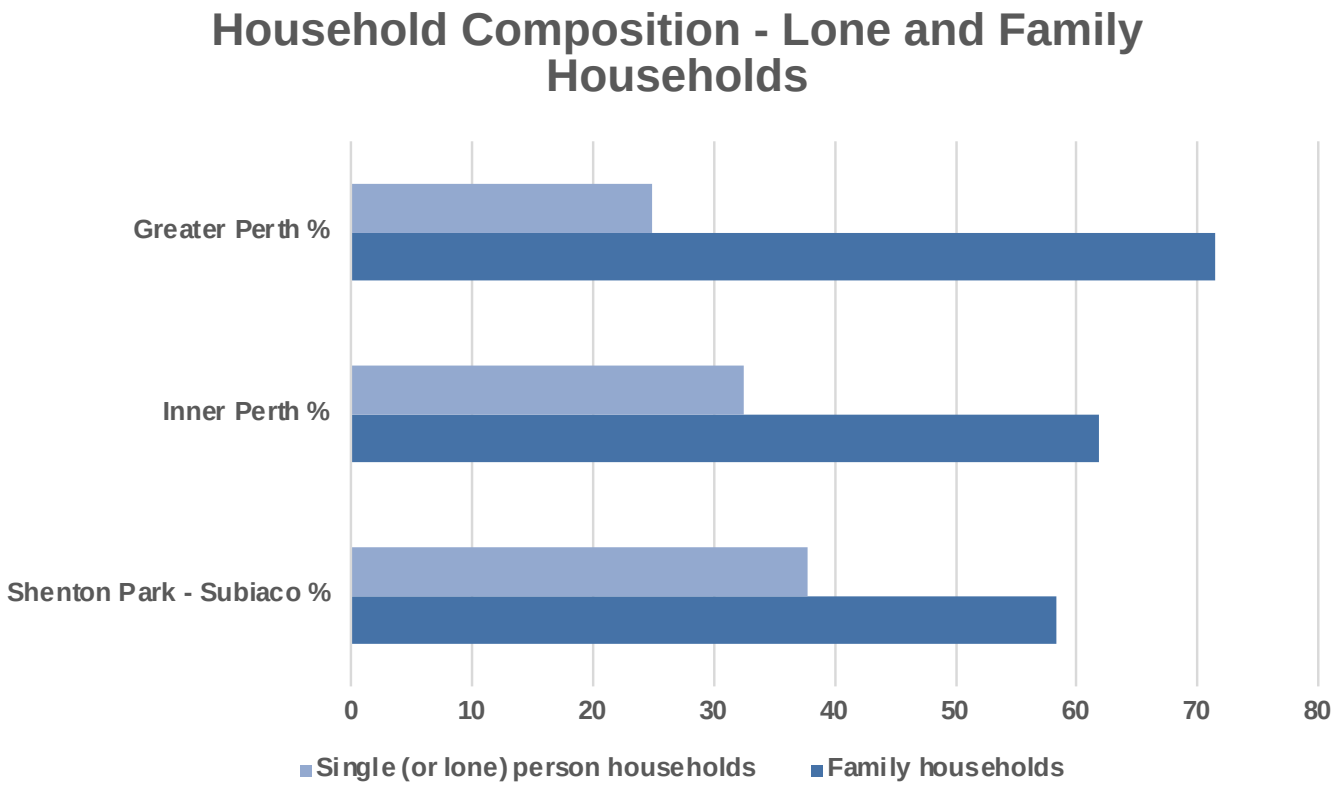
Table 5. Multiple Dwellings in Study Area

Year	Multiple Dwellings in Study Area (% of total dwellings)
2016	2,261 (33.3%)
2021	2,742 (36%)

3.2.2 Household Composition

The study area features a much higher proportion of lone person households in comparison to Inner and Greater Perth. This is reflective of the ageing population, a demographic for whom living alone is becoming increasingly common. The PSP has given this demographic aspect significant regard by facilitating a variety of single and two-bed apartments with access to the community spaces and commercial uses. This allows for the housing of lone household residents while encouraging social interaction and community participation.

Refer to Graph 1 – Household Composition in Study Area



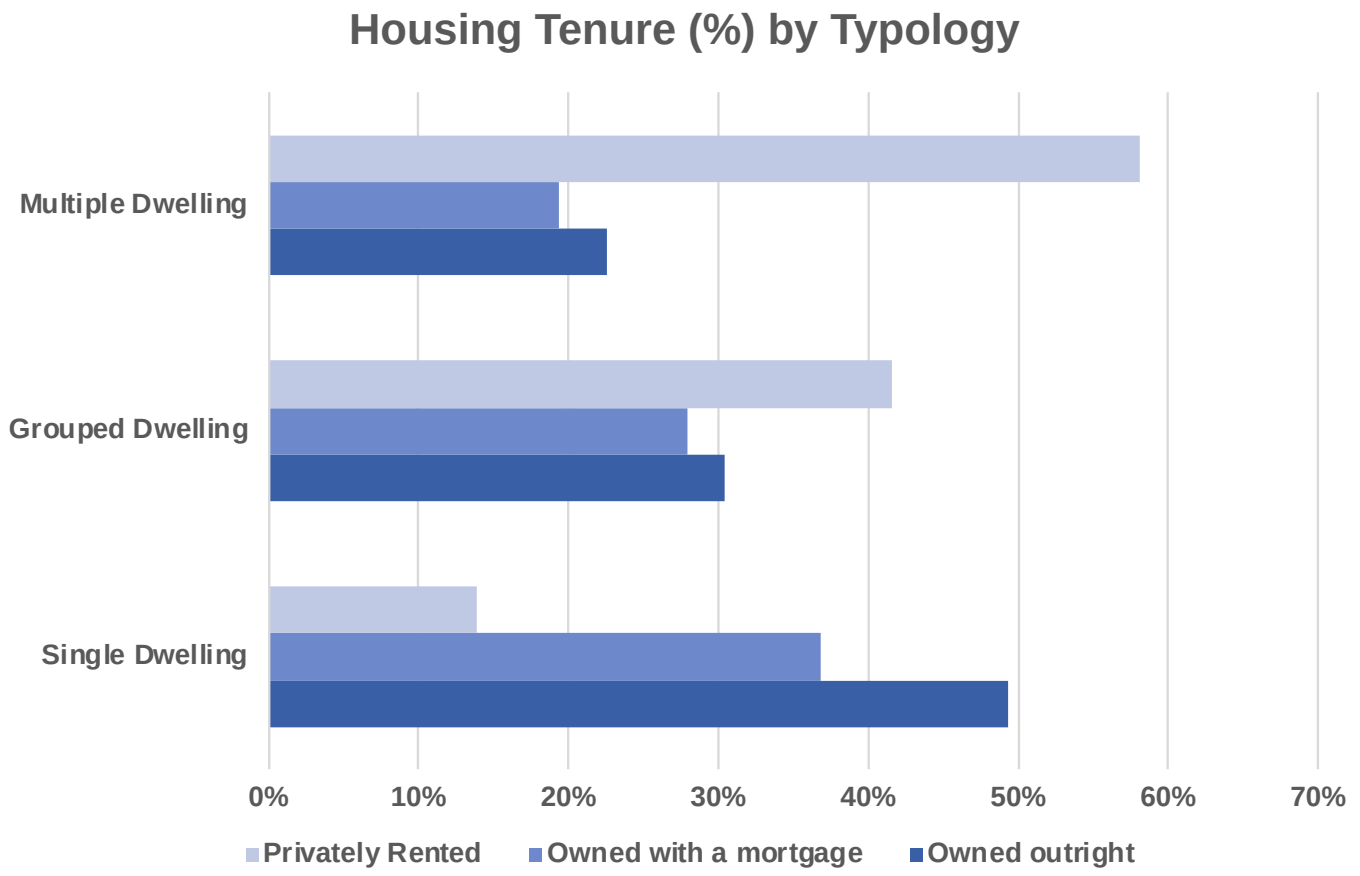
Graph 1. Household Composition in Study Area

3.2.3 Tenure

The Study Area exhibits a much higher rate of renting for multiple dwellings than other dwelling typologies. 58% of multiple dwellings are privately rented, as opposed to 42% and 14% for grouped and single dwellings, respectively. While this is a common trend across Perth for multiple dwellings, the relatively low 14% rental rate for single dwellings is 4% less than Greater Perth. This highlights that there is high demand to lease multiple dwellings in the Study Area, which the PSP seeks to facilitate through a sale of lease agreement consistent with Alinea's traditional operations.

Within the Study Area's rental market, multiple dwelling typologies also dominate. 56% of all rented properties in the Study Area are multiple dwellings, which is significantly greater than the ratio of 18% for all rented properties across Greater Perth.

These housing tenure and typology figures have been given significant regard in the preparation of this PSP. This PSP will ensure than the strong rental market for multiple dwellings will be capitalised upon through the lease arrangement of the subsequently development apartments.



Graph 2. Housing Tenure by Dwelling Typology

3.3 Economy

The Study Area is characterised as a generally affluent area, with average household incomes greater than Inner Perth and significantly higher than Greater Perth. Due to these higher incomes on average, the proportion of homes under mortgage or rental stress is low (refer to Table 6).

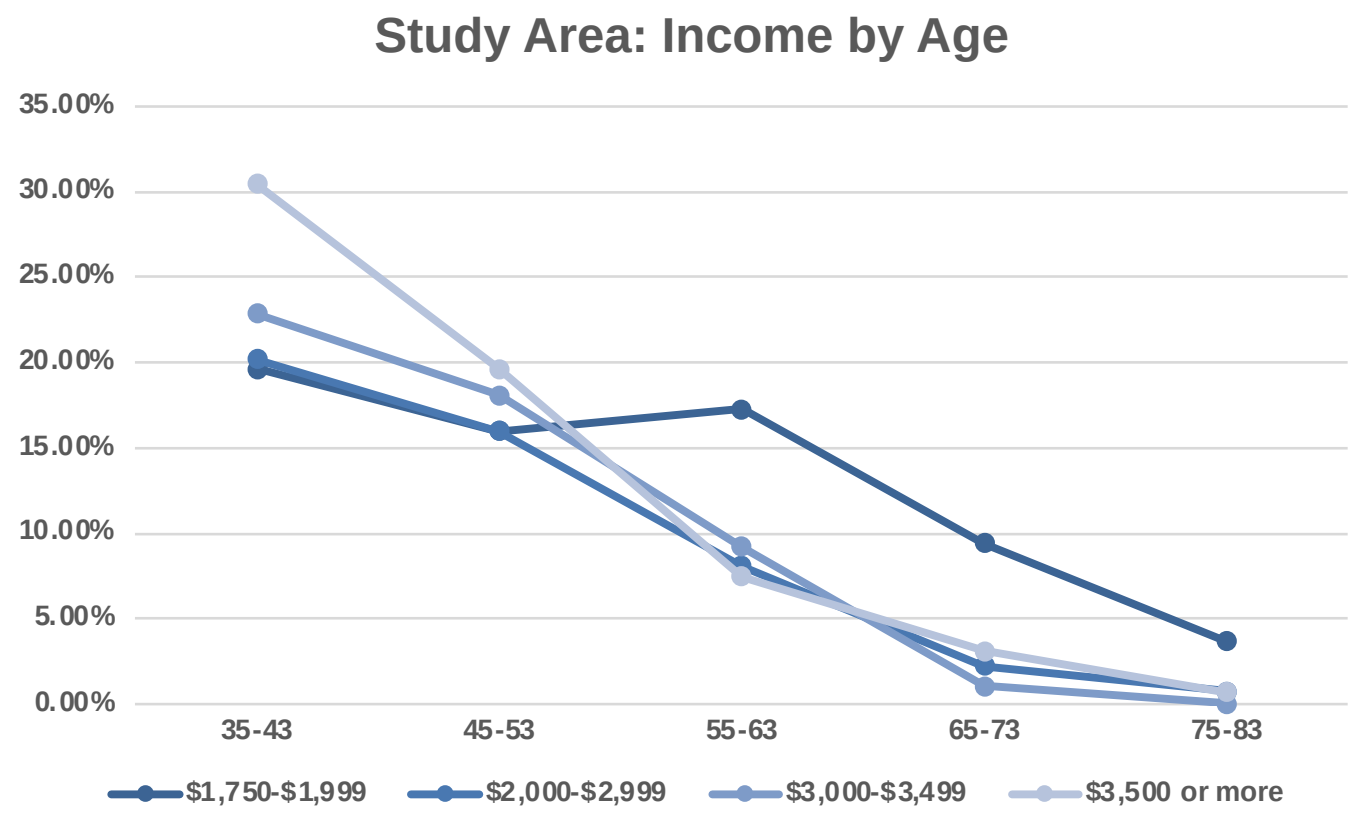
Table 6. Median Weekly Personal Incomes

Income	Subiaco – Shenton Park	Inner Perth	Greater Perth
Median Weekly Personal Income	$1,203	$1,144	$859
Median Weekly Household Income	$2,143	$2,243	$1,865

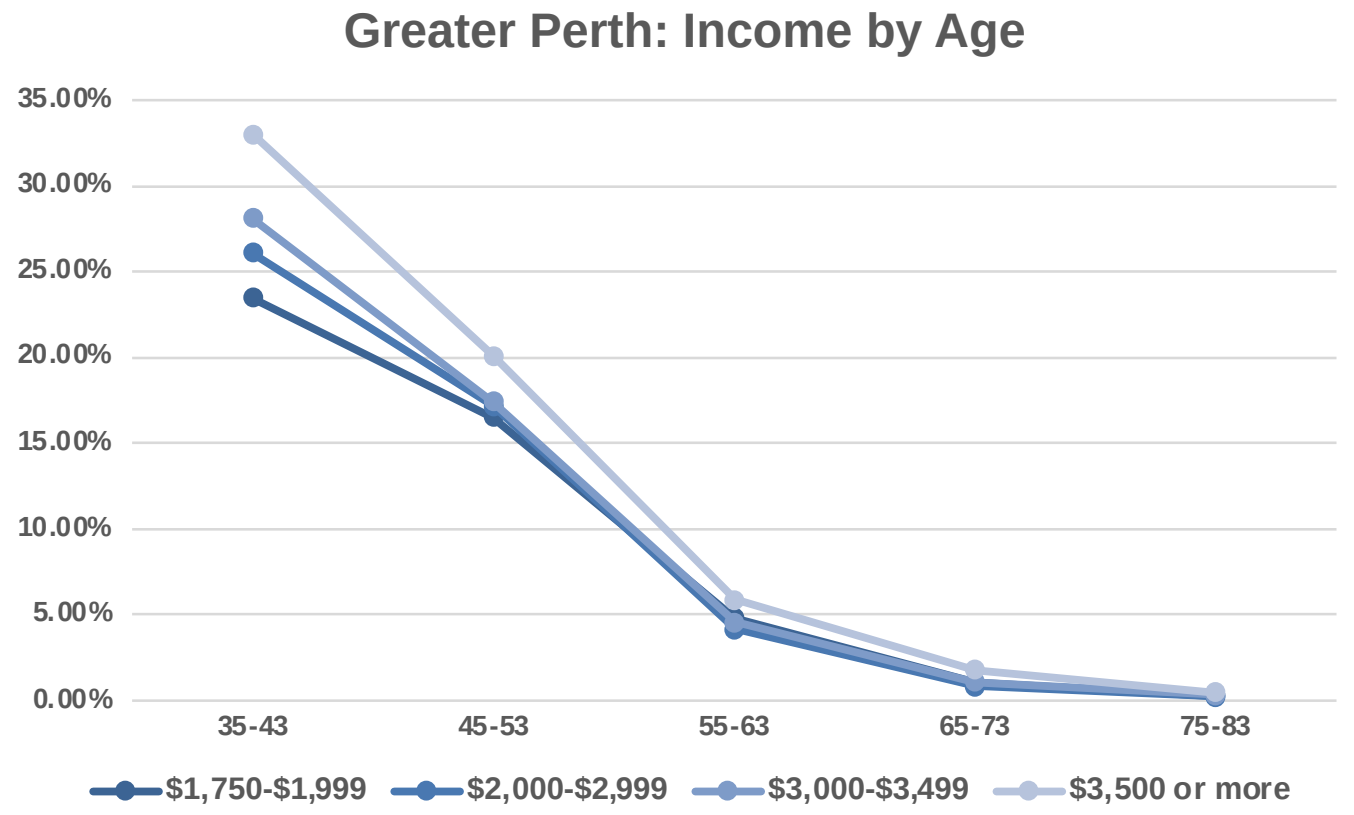
However, household and personal incomes are only significantly higher in the Study Area among residents of working age. Given that this PSP is facilitating a high-density residential retirement village, consideration has been given to income levels of residents over the age of 55 years.

Graph 3 and Graph 4 (income by age graphs) clearly show the differences in incomes are greatest during the years of working age, and then rapidly decrease closer to the Greater Perth averages after the age of 55. Considering this PSP is facilitating development to house people at retirement age, ensuring supported housing is provided is still a relevant consideration.

Therefore, this PSP has given regard to the income levels of the ageing population and ensures affordable, apartment living is provided to this demographic.



Graph 3. Income by Age (Study Area)



Graph 4. Income by Age (Greater Perth)

3.4 Stakeholder and Community Engagement

3.4.1 Pre Lodgement Engagement with Key Stakeholders

7 November 2023 – meeting with the City of Nedlands planning officers to discuss the development concept for the site, approvals pathway options and an update on land tenure matters. Agreed on a basic structure plan concept to guide the future development of the site.

4 December 2023 – meeting with Chairman of the WAPC to discuss the development concept for the site, approvals pathway options and an update on land tenure matters. Agreed on a basic structure plan concept to guide the future development of the site.

17 January 2024 – meeting with the Manager of Land Use Planning and Senior Planning Officer at the Department of Planning, Lands and Heritage to confirm input requirements relating to a relatively simple structure plan proposal.

How does the PSP respond to the feedback received

The PSP is a simple structure plan proposal, as per the discussions held with the relevant local government and state government planning officers. The structure plan includes a basic outline for development to occur on the site, inclusive of building height. The proposal also includes indicative areas of landscaping, parking provision and site access.

3.4.2 Community Consultation

Community consultation will be undertaken in accordance with the relevant requirements of Schedule 2, Part 4 of the *Planning and Development (Local Planning Schemes) Regulations 2015* and the City of Nedlands Local Planning Policy 7.3: Consultation of Planning Proposals.

4. Governance Context

4.1 State Planning Framework

4.1.1 Perth and Peel @3.5 Million

The Perth and Peel @ 3.5 Million land use planning and infrastructure framework sets out an overarching framework for the Perth and Peel regions in accommodating an anticipated population of 3.5 million people by 2050. Perth and Peel @ 3.5 million provides guidance on where development should occur over the next 30 years to ensure sustainable growth of the metropolitan area.

Perth and Peel @ 3.5 Million advocates strongly for increasing infill development, facilitating housing diversity, affordability and employment in existing urban areas.

The PSP falls within the Central Sub-regional Planning Framework area (Framework). The Framework stipulates infill dwelling targets for the Central Sub-Region, seeking an additional 26,830 infill dwellings from 2021- 2026 and a further 25,440 infill dwellings from 2026-2031. The Framework recognises the need for housing development to support ageing in place, as well as providing housing affordability and diversity.

Additionally, the subject site is identified as within an Urban Corridor and abuts a Station Precinct in the Central Sub-Precinct Framework Map (see below). According to the Framework, Urban Corridors are to provide integrated urban design and transport outcomes while providing connection to Station Precincts. Urban Corridors are intended to provide higher density and higher-rise residential along major transport routes.

Higher-density residential development such as the form sought by this PSP is to consider public transport infrastructure and capacity in an 800 metre radius. Relevant to this PSP, the radius includes high-frequency bus routes and the Shenton Park Station.

These targets and objectives are given significant regard by this PSP and are responded to through the provision of a well-connected, high-density housing product servicing senior residents in the Central metropolitan area.

Additionally, the built form sought through this PSP reflects the intention of Urban Corridors under the Framework, proposing greater height and density closer to major transport routes in the eastern portion of the site, while the western portion acts as a transition area.

Refer to Figure 6 – Central Sub-Precinct Map

4.1.2 Metropolitan Region Scheme

The subject site is zoned 'Urban' under the MRS. This is an appropriate zone to facilitate the proposed PSP and subsequent development, providing a range of activities which include residential and commercial land uses.

Refer to Figure 7 – Metropolitan Regional Scheme Map

Figure 6. Central Sub-Precinct Map

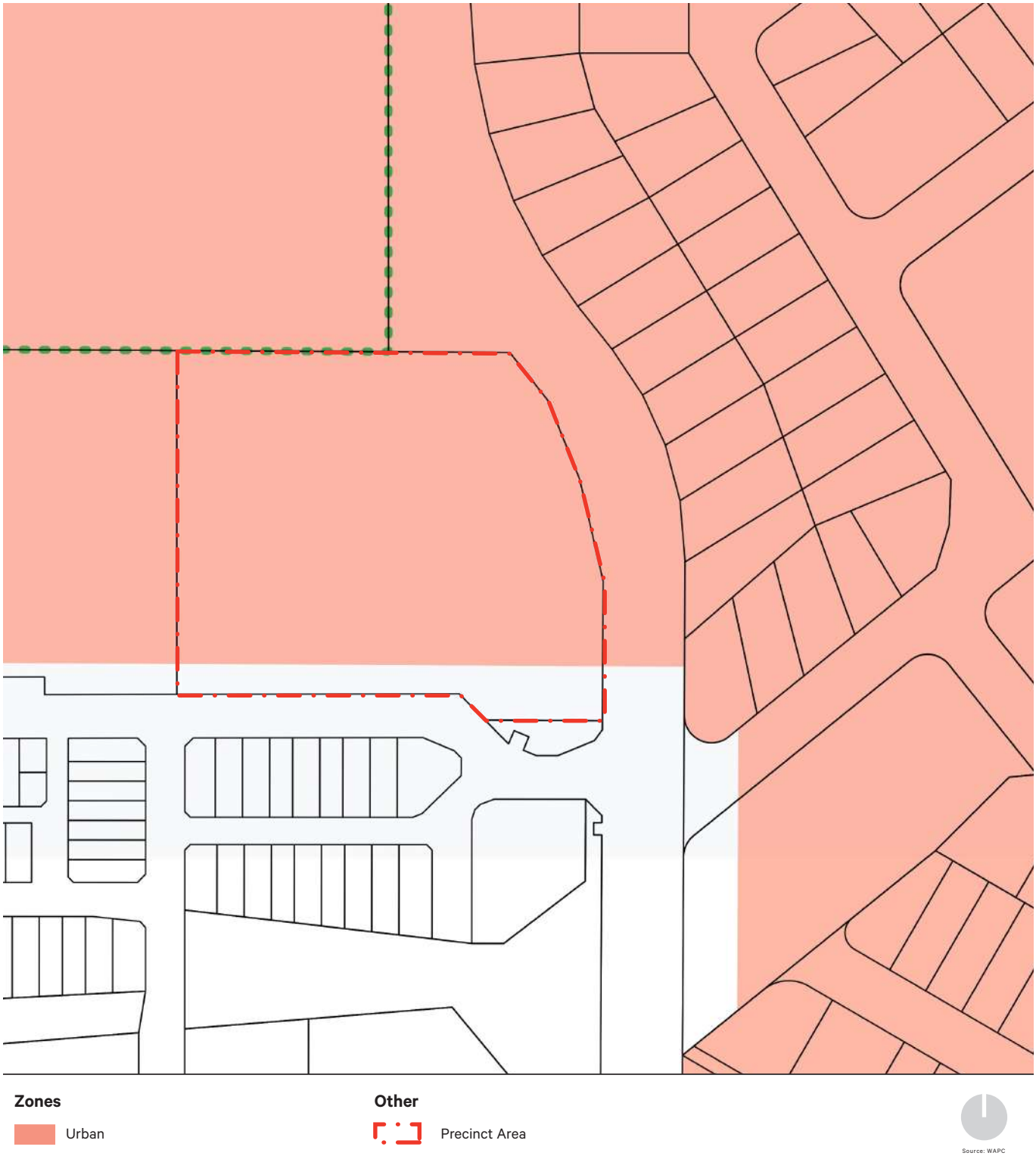


Figure 7. Metropolitan Regional Scheme Map

4.1.3 WA Housing Strategy (2020 – 2030)

The WA Housing Strategy (Housing Strategy) was introduced in 2020 to establish a state-wide framework to guide the supply, design, access and pathways for new homes and home ownership.

This PSP has given regard to the strategic responses of the Housing Strategy by facilitating an increased supply of affordable, supported dwellings in a highly accessible location. The Housing Strategy states a target of 150,000 new homes constructed in transit-oriented developments. This PSP will facilitate 200 dwellings of varying structures and affordability near major bus and rail routes.

4.1.4 State Planning Policy 3.7 – Planning in Bushfire Prone Areas

The subject site is located immediately south of a large area of native vegetation and is largely identified as bushfire prone in accordance with the Department of Fire and Emergency Services mapping. In accordance with the State Planning Policy 3.7 (SPP 3.7) Guidelines, a Bushfire Attack Level (BAL) assessment has been conducted to assess bushfire risk.

A Bushfire Management Plan (BMP) has also been prepared and attached at Appendix F. The BMP details safe design responses and appropriate treatment of vegetation. Development is to be in accordance with the provisions of this BMP.

4.1.5 State Planning Policy 7.0 – Design of the Built Environment

SPP 7.0 is a State Government initiative aimed at ensuring good design is at the centre of all development in Western Australia. SPP 7.0 is to be given regard by decision making authorities during the consideration of strategic and statutory planning proposals. SPP 7.0 includes '10 Principles of Good Design' which developments are assessed against – ideally utilising a design review panel to ensure holistic assessment from a range of relevant design disciplines.

Consultation with the relevant Design Review Panel is to be conducted to the satisfaction of the City of Nedlands prior to the lodgement of subsequent development applications.

4.1.6 State Planning Policy 7.2 – Precinct Design Guidelines

SPP 7.2 specifically deals with the planning and design of precincts and the preparation, assessment and review of PSP or LDP.

SPP 7.2 contains the requirements for structure plans facilitating residential infill development. SPP 7.2 informs the type of precinct that is applicable to the redevelopment. SPP 7.2 establishes different criteria and characteristics of each precinct type, and the chosen precinct category informs the key areas of planning and design that will be the focus of decision makers. Achievement of these criteria must also satisfy the objectives of SPP 7.0. Significant regard has been given to SPP 7.2 in the preparation, design response and assessment of this PSP. This PSP includes detailed design responses to the design elements defined in SPP 7.2 within Part 3 of this report.

4.1.7 State Planning Policy 7.3 – Residential Design Codes, Volume 2 Apartments

The objective of the implementation of the R-Codes, Vol. 2 in May 2019 was to provide a comprehensive framework for the control of residential development throughout Western Australia. This Policy guides various stakeholders in the design of developments and preparation of development applications, whilst also educating the community on the principles of good design and planning practice. This Policy provides the necessary built form controls for the Precinct area for mixed-use and multiple dwelling development. Regard has been given to SPP 7.3 to ensure the special residential development controls provided by this PSP are consistent with the element objectives of each design element.

4.1.8 Liveable Neighbourhoods 2009

Liveable Neighbourhoods 2009 is a strategic document which guides structure planning, subdivision of both greenfield and infill sites throughout WA. Whilst the adoption of SPP 7.2 means this document is not the primary structure planning instrument, it does provide important guidance in relation to the movement network and Public Open Space contribution.

No subdivision or strata arrangement will be facilitated by this PSP due to the existing tenure and configuration of the subject site. Therefore, there will not be any trigger for a formal Public Open Space (POS) provision as a proportion of the subject site.

Additionally, this PSP will facilitate development in accordance with the Retirement Villages Act 1992 and will be providing a senior's housing community in an independent living complex, open only to visitors and residents. Therefore, the provision of public amenity through POS is not appropriate or necessary.

Notwithstanding this, private communal open space shall be provided through the PSP by the enhancement of existing natural features to service the future residents of the Precinct. In the preliminary master plan for the site, approximately 20% of the site area of the Precinct has been identified as landscaped open space and deep soil area. Additional outdoor communal space is facilitated through the provision of hardscape, planting and softscape open space.

4.2 Local Planning Framework

4.2.1 City of Nedlands Local Planning Scheme No.3

LPS3 provides control and guidance on the development and use of land and buildings within the City of Nedlands. The subject site is zoned 'Urban Development'. LPS3 requires the preparation of a comprehensive structure plan or local development plan to guide future development for Urban Development zoned land.

Consequently, this PSP has been prepared to provide detailed guidance on the future development of the Precinct through the application of site-specific zonings, density and built form provisions.

Refer to Figure 8 – Local Planning Scheme

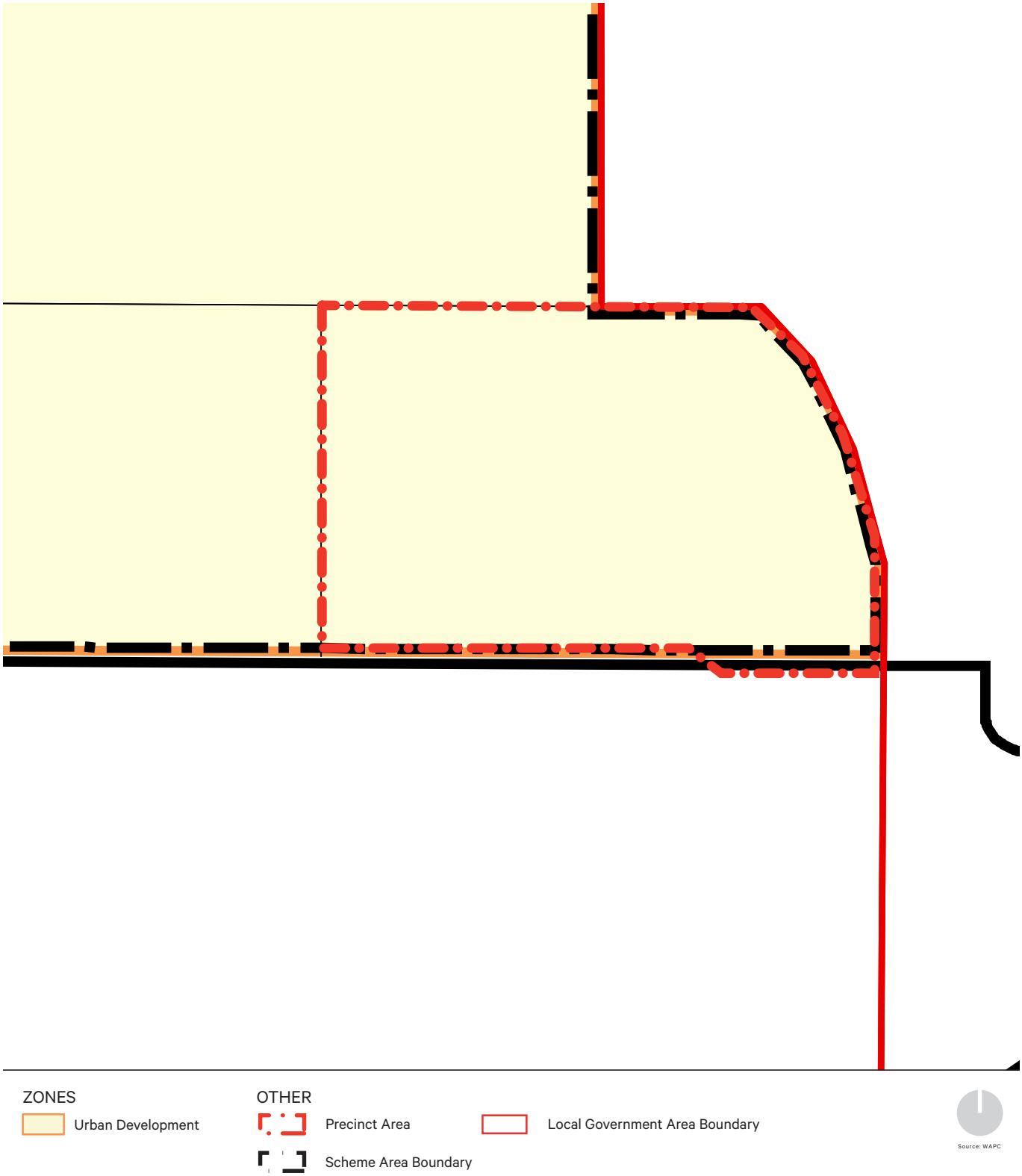


Figure 8. Local Planning Scheme

4.2.2 City of Nedlands Local Planning Strategy

The City of Nedlands Local Planning Strategy (The Strategy) was published and officially adopted in August of 2017. The Strategy identifies various objectives and actions to provide the planning context for zoning and further statutory provisions.

The Strategy Map identifies the subject site as being surrounded by a Redevelopment Area to the north and south, targeted for residential infill. The subject site is also identified as being within the Shenton Park strategic precinct, which includes the following strategic objectives:

- Prevent the encroachment of sensitive land uses and residential development within the Subiaco WWTP odour buffer area.
- As a priority, comprehensively plan for the precinct to resolve land use within and surrounding the Subiaco WWTP odour buffer.
- With urgency, comprehensively plan for land in proximity to the Shenton Park Hospital Redevelopment site and Lot 4 Underwood Avenue, and Bedbrook Place to resolve land use, desired built form and reservations.

This PSP has given significant regard to the strategic direction of the Strategy and specific objectives for the Shenton Park Precinct. This PSP will ensure the delivery of comprehensively planned high-density residential infill within the Shenton Park Hospital redevelopment area. Additionally, the PSP will facilitate development to assist a catalysing redevelopment across the wider Subiaco WWTP area to ensure the Precinct and surroundings achieve highest and best use.

Refer to Figure 9 – City of Nedlands Local Planning Strategy Map

4.2.3 Shenton Park Hospital Redevelopment Structure Plan

The Shenton Park Hospital Redevelopment Structure Plan (Shenton Park LSP) covers the land immediately to the south of the subject site, on the adjacent side of Orton Road. The Shenton Park LSP envisions residential densities ranging from R60 to R160, as well as public open spaces and commercial land uses.

The overarching vision of the Shenton Park LSP is as follows:

> *"The future redeveloped Shenton Park site offers the next evolution of inner city living – an urban village within a landscape setting. The redevelopment of the site will showcase a choice of multigenerational housing, affordable living, and local amenity, whilst retaining distinctive trees to create a neighbourhood with a feeling of security and privacy and clear connections to the train station and surrounds"*.

The Shenton Park LSP area is currently experiencing redevelopment in the form of medium density single dwellings with enhanced active transport infrastructure, open spaces and high-density living closer to Montario Quarter.

The design and provisions of this PSP have been prepared in accordance with significant regard being given to the intentions and built form of the Shenotn Park LSP. This is to ensure future development south of Orton Road is respected and appropriately addressed.

Refer to Figure 10 – Shenton Park Hospital Redevelopment LSP

Figure 9. City of Nedlands Local Planning Strategy Map

Figure 10. Shenton Park Hospital Redevelopment LSP

PART THREE – DESIGN RESPONSE

Design Element 1: Urban Ecology

Design Element Objectives

1. To protect, enhance, recognise and respond to the ecological systems of the precinct.
2. To enhance sense of place by recognising and responding to Aboriginal, cultural and built heritage.
3. To reduce the environmental and climate change impacts of the precinct development.

Design Element Response

The precinct design integrates existing natural elements, preserving deep soil areas and numerous significant trees along the Selby Street frontage and northern land. This retention allows for high-amenity views of visually appealing natural landscapes, further enhanced by native vegetation plantings. The existing dense tree plantings and canopy on the Selby Street frontage allows for natural screening of development where Precinct height is maximised, mitigating building bulk impacts and protecting visual privacy.

The natural topography of the Precinct also allows for a partially 'sunken' communal area. Ground floor amenities and active areas are located in the low points of the site, promoting a feeling of an enclosed communal open space. This natural topography assists in the creation of an independent living complex Precinct.

Building heights and views are planned to maximise the tree canopy views, while co-locating ground-floor amenities, hardscaping, and car parking with the canopy creates naturally shaded and comfortable communal spaces. Additionally, new tree plantings within car parking areas mitigate heat island effects, contributing to a sustainable and ecologically sensitive precinct.

Central landscaped areas allow for the control of stormwater management onsite and promote sustainable urban environments through water-sensitive urban design.

The subject site is not identified as a registered site of Indigenous Heritage significance. However, urban design responses are encouraged to recognise and celebrate the known stories of the Whadjuk cultural heritage where appropriate.

Figure 11. Indicative Precinct Vision

Design Element 2: Urban Structure

Design Element Objectives

1. To ensure the pattern of blocks, streets, buildings and open space responds and contributes to a distinct, legible precinct character.
2. To promote an urban structure that supports accessibility and connectivity within and outside the precinct.
3. To ensure the urban structure supports the built form, public realm and activity intended for the precinct.
4. To ensure an adaptable urban structure that can respond to and facilitate change within a precinct.

Design Element Response

The PSP seeks to modernise existing structures and align with modern development standards seen in the redevelopment of surrounding areas such as Montario Quarter. While no subdivision is necessary, building blocks are sized and positioned to respect the Precinct's intended function and facilitate an independent living complex retirement village community.

Lower scale development at the interface of Montario Quarter (abutting Orton Road), has been adopted to complement the street frontage and align to the directly adjacent townhouses. While the larger scale development has been focussed along Selby Street, which will be sheltered by existing vegetation and adjacent to a major traffic network.

Buildings are oriented to foster a sense of community and enclosure internal to the Precinct, with less emphasis on interaction with the external public realm. The focused density and circular layout of buildings to the rear of the site, roads, and public spaces promote walkability and legibility. Connectivity to nearby Shenton Parking Station and bus routes is prioritised, along with connections to improved infrastructure for both private vehicles and active transport.

This PSP represents a significant improvement over the outdated existing development, establishing a well-connected urban structure with complementary commercial uses such as a resident cafe and community space integrated within residential blocks for a vibrant internal community.

Design Element 3: Public Realm

Design Element Objectives

1. To ensure the public realm is designed to promote community health and wellbeing.
2. To enable local character and identity to be expressed in public realm design to enhance sense of place.
3. To ensure that key environmental attributes are protected and enhanced within the public realm.
4. To ensure the public realm is designed to be inclusive, safe and accessible for different users and people of all ages and abilities.
5. To ensure public realm design is integrated with the built form, movement network and landscape of the precinct.

Design Element Response

Community interaction, health, and wellbeing are central considerations in designing the Precinct's public realm, identified as communal open space. Communal clubrooms, recreational facilities, and active food and beverage land uses encourage social interaction between residents within planned public spaces. Given this will be an area for accommodating seniors within the community, these included amenities will be critical for encouraging social interaction and providing both physical and mental health benefits.

The natural topography assists in shaping central community spaces that feel enclosed from the external public realm while fostering an intimate sense of community within the Precinct. Retained trees and new vegetation are co-located within these spaces to enhance natural amenity and comfort. Specifically, public spaces often coincide with areas of denser tree canopy, such as the Clubhouse and Café.

The circular design ensures high legibility for all users, regardless of their transport mode or ability. Additionally, extensive passive surveillance and lighting adhere to CPTED principles, promoting safety and security. Finally, building design carefully considers bulk and scale to ensure the public realm remains enclosed yet spacious and comfortable.

Serving as an independent living complex for seniors, it is critical that residents in the community can feel safe and secure within their homes, particularly when those who are ageing can feel most vulnerable. The design has been developed to promote safety and security to its residents as noted above (e.g. passive surveillance, CPTED principles etc.). Security has also been prioritised through delineation and the provision of secure access points to ensure the safety and privacy for residents of the independent living complex is upheld.

Although the focus of this PSP is the creation of an independent senior's community, consideration has also been given to visual and physical connection to the development of the surrounding area, including Montario Quarter to the south. The PSP recognizes the opportunity for this proposal to form part of the developing community within this catchment.

Design Element 4: Movement

Design Element Objectives

1. To ensure the movement network supports the function and ongoing development of the precinct.
2. To ensure a resilient movement network that prioritises affordable, efficient, sustainable and healthy modes of transport.
3. To enable a range of transport choice that meet the needs of residents, workers and visitors.
4. To ensure the quantity, location, management and design of parking supports the vision of the precinct.

Design Element Response

The Precinct design carefully integrates both private vehicle access and public transport use, as detailed in the accompanying Traffic Impact Assessment (TIA). The TIA accurately assesses current and future traffic needs generated by the redevelopment, proposing an internal road network that prioritizes simplicity and legibility while enabling connections to major external routes.

Walkability and access to nearby transport nodes are key considerations, with easy connections to Selby Street and Montario Quarter, as well as Shenton Park Station for accessing Fremantle, Perth, Claremont and Perth Airport.

Internally, wide footpaths and public spaces maximise legibility and walkability, providing unobstructed pedestrian vision for clear wayfinding. Internal walkable routes are focused centrally in the Precinct, while private vehicular movements are purposefully separated to the Precinct perimeter.

While acknowledging the need for private vehicle access, the PSP anticipates upgrades to Orton Road which will generate a much wider catchment for private vehicle access. This is accommodated through the provision of ample vehicle parking, while no variations to existing parking requirements will be sought. The Orton Road upgrades are anticipated to be completed as part of the Shenton Park Hospital upgrades, and are external to this site and proposal.

Given the future development is intended to provide housing and care for elderly and disabled residents, the provision of adequate ACROD bays in accordance with national standards is to be a priority.

Design Element 5: Land Use

Design Element Objectives

1. To ensure current and planned land uses respond to the needs and expectations of the community.
2. To ensure the planned land use types contribute positively to the precinct character and amenity.
3. To achieve a mix of land uses and activity that supports the precinct vision.

Design Element Response

The existing Urban Development zoning of the subject site, coupled with its location within a broader redevelopment area, necessitates a detailed Precinct Structure Plan (PSP) outlining future development requirements.

This PSP must ensure the area aligns with the surrounding built form and land use, reflecting the high demand for multiple dwellings specifically designed for an aging population. Therefore, the PSP proposes the provision for dedicated seniors housing operated by a registered charity.

Beyond immediate needs, the plan caters to future adaptability by facilitating diverse community amenities to service the area. Collocating key land uses within the Precinct maximises community benefit, through a residential café and recreational facilities provided at the ground floor of residential buildings.

In accordance with the proposed amendments to the applicable management order, currently under negotiation, the design of the PSP allows for future flexibility to provide expanded land uses including aged care, disability accommodation and supported employment to service the changing needs of the catchment.

The proposed land uses draw upon proven successes in retirement village development and cater specifically to the needs of an aging population. The chosen residential density is commensurate with Transit Oriented Developments (TODs) across Perth, provided a density slightly greater than R100 to cater to an established market, without oversaturating the area.

The PSP will contribute towards the broader Montario Quarter precinct, providing alternate accommodation to what is currently proposed and giving greater choice to residents regarding product type and affordability. The precinct will also contribute to the overall vision of Montario Quarter.

Design Element 6: Built Form

Design Element Objectives

1. To ensure that the built form is responsive to the purpose, context and intended character of the precinct.
2. To ensure building placement, scale and massing is appropriate for the intended precinct and streetscape character.
3. To ensure that built form design reduces energy demand across the precinct by facilitating climate-responsive design.
4. To ensure that built form design is responsive to the streetscape and contributes to a safe and comfortable public realm.

Design Element Response

The Precinct's built form integrates with the surrounding landscape, responding to the natural topography and existing vegetation for passive screening of denser areas. This creates a natural sense of enclosure and security within the Precinct.

Building heights vary between building blocks, creating visual interest throughout the development. Heights are focused away from public streets, while lower heights near public streets are respectful to the surrounding development and facilitate interaction with the public realm.

Careful building placement and orientation ensure ample natural sunlight reaches the central public realm, creating a bright and inviting space. The circular layout not only prevents the formation of uncomfortable wind tunnels but also facilitates passive surveillance through its design and the incorporation of balconies, enhancing safety and security.

Proposed variations to the Residential Design Codes are minimal, aiming solely to support the low-intensity character of the Precinct and avoid a major redevelopment approach. In essence, the built form reflects the intended function of the Precinct, prioritising a harmonious and sustainable environment for its residents.

The design will also look to include environmental sustainable building practices where possible, mitigating against environmental impacts and contributing towards the broader sustainability targets of the surrounding developing precinct.

The design focuses on creating an inclusive and safe precinct for all residents, focused on design initiatives which are welcoming to residents and visitors while serve as a deterrent from persons who do not have a vested interested in being at the precinct (e.g. passive surveillance).

Appendix A – Traffic Impact Statement

TRANSPORT IMPACT STATEMENT

Lot 47 Orton Road

Shenton Park

October 2023

Rev A Draft

HISTORY AND STATUS OF THE DOCUMENT

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
Rev A Draft	30.10.2023	M Kleyweg	M Kleyweg	31.10.2023	Issued for Review

DISTRIBUTION OF COPIES

Revision	Date of issue	Quantity	Issued to
Rev A Draft	31.10.2023	1 (PDF)	Ben Watson (OP Property)

Document Printed	31/10/2023 8:43 AM
File Name	C:\Users\Nemanja\Box\KCTT Projects\KC00000 Current Projects\KC01649.000 Lot 47 Orton Road, Shenton Park TIS\Outgoing\Report\231020 Rev A Draft\KC01649.000 Lot 47 Orton Road, Shenton Park, TIS, Rev A Draft.docx
Author of the Rev A Draft	Nemanja Marijanovic
Author of the Current Revision	Nemanja Marijanovic
Project Team	/
Project Director / Project Manager	Marina Kleyweg
Name of Project	KC01649.000 Lot 47 Orton Road, Shenton Park
Name of the Document	KC01649.000 Lot 47 Orton Road, Shenton Park - Transport Impact Statement
Document Version	KC01649.000_R01_ Rev A Draft

Prepared by: KCTT (Trading as KC Traffic and Transport Pty Ltd)
ABN 35 148 970 727 |
Postal address: PO Box 1456, Scarborough WA 6922 |
Website: www.kctt.com.au |

Table of Contents

Appendices

1. Executive Summary

Site Context

- The project location is Lot 47 Orton Road, Shenton Park.
- The subject site is currently occupied by a quadriplegic centre. Based on the publicly available financial reports, this centre cares for 17 patients a day on average with 36 staff members across three shifts (in 2021/2022).
- The proposed development is a lifestyle village with 200 independent living units. The proposed development also includes resident-only ancillary land uses: office, café, resident clubhouse and community facilities.

Technical Findings

- The total impact from the proposed development is expected to be up to 440 vehicular trips per day and 50 vehicular trips per hour in peak hours.
- The additional traffic impact from the proposed development is calculated by subtraction of existing traffic from the proposed traffic. The total calculated impact will be 328 vehicular trips per day and 29 vehicular trips per hour in peak hours.
- According to WAPC guidelines, all developments generating 10-100 VPH can be deemed to have a moderate impact on the network.
- KCTT believes the surrounding road network can accommodate additional traffic from the proposed development.

Relationship with Policies

- The Local Planning Policy 4.1 does not provide parking rates for lifestyle (retirement) villages.
- According to the R–Codes Volume 2 – Apartments, the proposed development requires 177 parking bays. In addition, 20 parking bays are expected to be required by staff members – a total of 197 parking bays are required. The proposed plans show 258 parking bays provided, exceeding the requirements.
- Building Code of Australia ACROD Provision – If required, given there is an excess of parking provided, ACROD bays could be easily added in the following stages of the development application.

Conclusion

- As stated above, the additional traffic attracted to the subject site is expected to increase by a maximum of 328 vehicular trips per day and 29 vehicular trips in the peak hour.
- Orton Road is classified as an Access Road as per MRWA classification, with the maximum desirable volume of 3,000 vehicles per day. Currently there are no publicly available traffic counts for this road. However, given this road provides access to the higher road hierarchy network for several similar and other low-traffic generating developments, it is unlikely that Orton Road carries over 2,000 VPD.
- Therefore, with the added traffic from the subject site, the street would remain well under Access Roads' maximum desirable traffic volume.
- Other surrounding roads would absorb significantly less traffic than Orton Road, moreover, the traffic would be dispersed so that the impact can be considered negligible.
- In summary, KCTT believe that the proposed development will not negatively impact the surrounding road network.

2. Transport Impact Statement

2.1 Proposal

OP Properties engaged KCTT to prepare a Transport Impact Statement (TIS) for the proposed Lifestyle Village at Lot 47 Orton Road, Shenton Park.

The subject site will have a connection to the road network via 3 crossovers to/from Orton Road.

This report will primarily address the level of impact of the proposed development and the requirements for integration of the proposed development with the surroundings, namely the existing and planned immediate road network.

2.2 Location

Lot Number	Lot 47
Street Number	No. 2
Road Name	Orton Road
Suburb	Shenton Park
Description of Site	The subject site is currently occupied by a quadriplegic centre. Based on publicly available information, this centre cares for 17 patients a day on average, with 36 staff members across three shifts (in 2021/2022). The proposed development is a lifestyle village with 200 independent living units. The proposed development also includes resident-only ancillary land uses: office, café, resident clubhouse and community facilities.

2.3 Technical Literature Used

Local Government Authority	City of Nedlands
Type of Development	Individual Development
Is the NSW RTA Guide to Traffic Generating Developments Version 2.2 October 2002 (referenced to determine trip generation / attraction rates for various land uses) referenced?	YES
Which WAPC Transport Impact Assessment Guideline should be referenced?	Volume 4 - Individual Developments Volume 5 - Technical Guidance
Are there applicable LGA schemes for this type of development?	YES
If YES, Nominate:	
Name and Number of Scheme	Local Planning Scheme No. 3
Are Austroads documents referenced?	YES

2.4 Land Uses

Are there any existing Land Uses	YES
If YES, Nominate:	Quadriplegic Centre – 17 patients a day; 36 staff members
Proposed Land Uses	
How many types of land uses are proposed?	Four (4)
Nominate land use type and yield	Aged Care Facility – 200 apartments *Ancillary Land uses:* Community Facilities – 894m^2 Café – 234m^2 Office – 153m^2 Residential Club House – 393m^2 Ancillary land uses are not expected to have any additional parking requirements or generate additional traffic for visitors (except staff members of these facilities), given they will be intended for residents only.
Are the proposed land uses complementary with the surrounding land-uses?	YES

2.5 Local Road Network Information

How many roads front the subject site? Two (2)

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

Road Name	Orton Road
Number of Lanes	two way, one lane (no linemarking), undivided
Road Reservation Width	16m
Road Pavement Width	6m
Classification	Access Road
Speed Limit	40kph
Bus Route	NO
On-street parking	NO (at the section in front of the subject lot)

Road Name	Selby Street
Number of Lanes	two way, two lanes per direction, divided
Road Reservation Width	30m
Road Pavement Width	18m including raised median
Classification	Distributor A / Distributor B
Speed Limit	60kph
Bus Route	YES
If YES Nominate Bus Routes	998, 999
On-street parking	YES

2.6 Traffic Volumes

Road Name	Location of Traffic Count	Vehicles Per Day (VPD)	Vehicles per Peak Hour (VPH)				Heavy Vehicle %	Date of Traffic Count	*If older than 3 years multiply with a growth rate*
			AM Peak Time	AM Peak VPH	PM Peak Time	PM Peak VPH	*If HV count is Not Available, are HV likely to be in higher volumes than generally expected?*		
Hay Street	West of Jersey Street	13,231	08:00 –	1,331	16:45 –	1,236	6.1%	2021/ 2022	–
Lemnos Street	West of Selby Street	5,597	08:00 –	588	14:45 –	596	12.5%	2019/ 2020	6,299 (3% annual growth rate to 2023)
Selby Street	South of Nash Street	12,791	08:00 –	1,391	14:45 –	1,232	9.4%	2019/ 2020	14,396 (3% annual growth rate to 2023)
	North of Stubbs Terrace	8,493	08:00 –	885	16:00 –	746	9.1%	2019/ 2020	9,559 (3% annual growth rate to 2023)
	North of Hay Street	24,774	07:45 –	2,196	15:45 –	2,230	6.2%	2021/ 2022	–

Note - These traffic counts have been obtained from the MRWA Traffic Map*

2.7 Vehicular Crash Information

Is Crash Data Available on Main Roads WA website?	YES
If YES, nominate important survey locations:	
Location 1	Orton Road – no crashes reported in the below 5-year period
Location 2	Intersection of Orton Road and Selby Street
Period of crash data collection	01/01/2018 - 31/12/2022

The following tables show crash rates and crash densities in Perth Metropolitan area on local roads and state roads for the period from 2017 to 2022, as obtained from Main Roads WA on the 31st May 2022 by email request:

Crash Density and Crash Rate on Metropolitan Local Roads Network only

	All Crashes		Serious Injury Crashes (Fatal+Hospital)	
	Average Annual Crash Density (All Crashes/KM)	Average Annual Crash Rate (All Crashes/MVKT)	Average Annual Crash Density (Ser. Inj. Crashes/KM)	Average Annual Crash Rate (Ser. Inj. Crashes/MVKT)
Metro Local Roads - Midblock	2.51	0.95	0.12	0.05
Metro Local Roads - All	5.23	1.98	0.24	0.09

Note: Based on 5-years data for the period 2017 to 2021.

Definitions of acronyms and terms used in this analysis can be found below:

- PDO Crash - a crash that results in property damage only (major or minor) and does not require hospitalisation or medical treatment, as listed in Main Roads WA's Crash Analysis Reporting System (CARS).
- KSI Crashes - Killed and serious injury crash
- MVKT - Million Vehicle Kilometres Travelled.

Intersection Name	Road Hierarchy	Speed Limit	Crash Statistics			
			No of KSI Crashes	No of Medical Attention Crashes	No of PDO Major Crashes	No of PDO Minor Crashes
Orton Road / Selby Street / Clubb Avenue	Access Road / Distributor A / Access Road	40 kph / 60kph / 50kph or State Limit	0	0	1	1

MR Type	Involving Overtaking	Involving Parking	Involving Animal	Involving Pedestrian	Entering / Leaving Driveway	Other / Unknown
Count	0	0	0	1	0	1

No of MVKT Travelled at Location	App. 13,000 VPD * 365 * 5 years * 0.4 km = 9.49 MVKT
KSI Crash Rate	0 KSI crashes / 9.49 MVKT = 0 KSI crashes/MVKT
All Crash Rate	2 crashes / 9.49 MVKT = 0.2crashes/MVKT
Comparison with Crash Density and Crash Rate Statistics	All crashes rate of 0.2 crashes/MVKT is significantly lower than the network average of 1.98 Crashes per MVKT for Local Roads Network

2.8 Vehicular Parking

Local Government	City of Nedlands
Local Government Document Utilised	Local Planning Policy 4.1 – Parking State Planning Policy 7.3 Residential Design Codes Volume 2 – Apartments (Gazetted on 1 September 2023)

Description of Parking Requirements in accordance with Scheme:

There are no parking rates for a retirement village in the LPP 4.1 - Parking. Given that there will be no aged care component to the site. KCTT suggest using an R-Codes Apartments rate for this land use.

R-Codes Volume 2 – Apartments:

Location A (all land within 800m of a train station on a high-frequency rail route):

- *0.75 bay per dwelling*
- *Visitor: 1 per four dwellings up to 12 dwellings;1 bay per eight dwellings for the 13th dwelling and above*

KCTT also suggest 1 parking bay per ancillary land uses staff member.

Calculation of Parking

Land Use	Requirements	Yield	Total Parking
Lifestyle (Retirement) Village - Residents	0.75 per every apartment	200 apartments	150
Lifestyle (Retirement) Village - Visitors	1 per 4 dwellings up to 12 dwellings; 1 per 8 dwellings for the 13th dwelling and above	200 apartments	27
Lifestyle (Retirement) Village – Ancillary Land Uses Staff members	1 per every staff member	20 staff members assumed	20
		Total Car Parking Requirement	**197**
		Total Volume of Parking Provided by Proponent	**258**

Justification

According to the R-Codes Volume 2 - Apartments, the proposed development requires 177 parking bays. In addition, 20 parking bays are expected to be required by staff members – a total of 197 parking bays are required. The proposed development will provide 258 bays, exceeding the requirements.

2.9 Compliance with AS2890 Parking facilities

Which Austroads documents are referenced?	• Australian/New Zealand Standard, Parking facilities, Part 1: Off-street car parking - AS 2890.01 • Australian/New Zealand Standard, Parking facilities, Part 6: Off-street parking for people with disabilities – AS2890.06
Number of Parking Bays on-site	• 258 bays
Proposed development User Class	• 1 - Employee and commuter parking (generally, all-day parking) • 1A - Residential, domestic and employee parking
Driveway category and dimensions	• Category 2 access driveways • 6m driveway width • 20-30 m driveway length

2.9.1 Compliance Overview

FULL COMPLIANCE	PARTIAL DEPARTURE	FULL DEPARTURE	NOT APPLICABLE

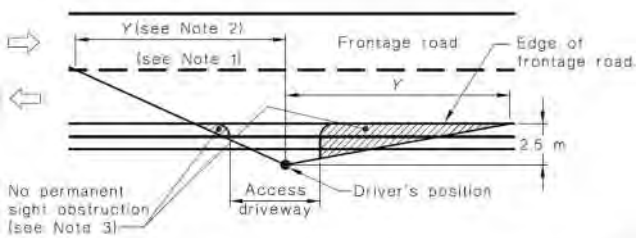
Element	Compliance	Comment
Car Bay Class 1A	FULL COMPLIANCE	
Aisle width	FULL COMPLIANCE	
Blind Aisle Extension	PARTIAL DEPARTURE	As shown in Appendix 3, two bays in the northern section of parking require blind aisle extension.
Single-sided aisle width	NOT APPLICABLE	
Reversing bay	NOT APPLICABLE	
Vertical Clearance	FULL COMPLIANCE	
Location of driveway	FULL COMPLIANCE	
Sight distance requirements at access driveways	FULL COMPLIANCE	
Minimum sight lines for pedestrian safety	FULL COMPLIANCE	

2.9.2 Comparison of proposed layout to AS2890.01 requirements

Parking Bay Type	AS2890.1:2004 Off-street car parking					
	Parking Bay Length		Parking Bay Width		Aisle Width	
	Required	Proposed	Required	Proposed	Required	Proposed
All bays at 90° (User Class 1A)	5.4m	5.4m	2.4m	2.7m	5.8m	6.2m

Name other requirements in the AS2890.1:2004 document.

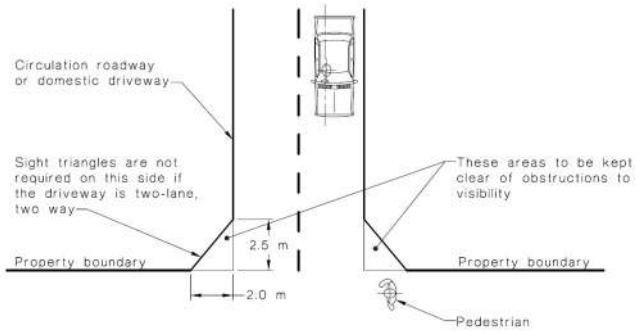
"Entering sight distance
Unsignalized access driveways shall be located so that the intersection sight distance along the frontage road available to drivers leaving the car park or domestic driveway is at least that shown in Figure 3.2."



Frontage road speed (Note 4) km/h	Distance (Y) along frontage road m		
	Access driveways other than domestic (Note 5)		Domestic property access (Note 6)
	Desirable 5 s gap	Minimum SSD	
40	55	35	30
50	69	45	40

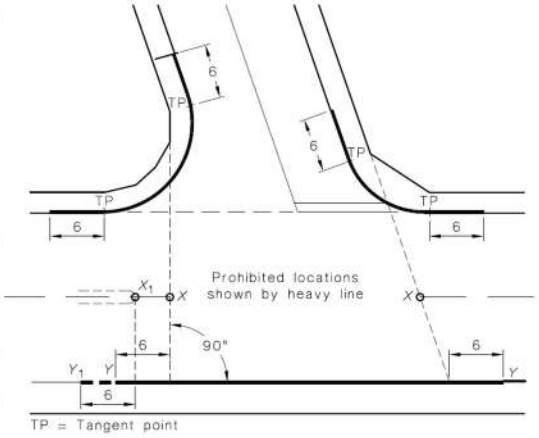
Sight distance requirements at access driveways	30m sight distance achievable as required

"Sight distance to pedestrians
Clear sight lines as shown in Figure 3.3 shall be provided at the property line to ensure adequate visibility between vehicles leaving the car park or domestic driveway and pedestrians on the frontage road footpath."



Minimum sight lines for pedestrian safety	Clear pedestrian sightlines will be provided in the detailed development application stage where there is a pedestrian path on the frontage road.
Access driveway width	6m

"Access driveway location
Driveway Categories 1 and 2 At unsignalized intersections of sub-arterial, collector or local streets with each other or with an arterial road, access driveways in Categories 1 and 2 (see Table 3.1) shall not be located in the sections of kerb shown by heavy lines in Figure 3.1. This requirement shall not apply to accesses to domestic driveways in the kerb section opposite the entering road at any intersection including signalized intersections. Furthermore, it shall not apply to any access driveway serving a property which would otherwise be denied access due to the physical impossibility of meeting the requirement."



Access driveway location	The western proposed crossover will be located more than the required 6m from the intersection of Orton Road and Dawes View tangent point.

2.9.3 Vehicle Swept Paths

Have Vehicle Swept Paths been checked for Parking? YES

If YES, provide description of performance:

The proposed parking area has been checked with a standard B99 Passenger Vehicle 5.2m and with a 9.491m waste vehicle.

The designated vehicle can easily navigate through the entire parking area, with a few important points to consider:

- Blind aisle extension to be added at the marked location (drawings S20 and S21 – Appendix 3).
- Crossover kerb radii to be checked and amended to suit the vehicles in the detailed stage of development application.

Please refer to the swept path analysis plans provided in Appendix 3.

2.10 Bicycle Parking

Local Government	City of Nedlands
Reference Document Utilised	Local Planning Policy – Parking

Description of Parking Requirements in accordance with Scheme:

City of Nedlands currently does not provide bicycle parking requirements in the LPS No. 3.

Justification

Currently, the layout plans do not show any bicycle parking spaces proposed. Given the nature of the proposed development, it is unlikely that bicycles would be used for arriving to site. If needed, bicycles could be stored in apartments' respective storage areas.

2.11 ACROD Parking

Class of Building	Class 2
Does this building class require specific provision of ACROD Parking?	NO
Reference Document Utilised	Building Code of Australia

Description of Parking Requirements:

N/A

Justification

The proposed development does not provide any accessible units. If any future residents require an ACROD bay during their residence, given the excess parking provided, ACROD bays could be easily added to the site.

2.12 Delivery and Service Vehicles

Guideline Document used as reference: NSW RTA Guide to Traffic Generating Developments

Requirements

Residential flat buildings (< 200 flats or home Units) - 1 space per 50 flats or home units plus 1 space per 1,000 m2 of public area set aside for bar, tavern, lounge and restaurant

Parking Requirement in accordance with regulatory documents

Land Use	Minimum Requirements	Yield	Total Parking
Lifestyle Village – Independent Living Units	*1 space per 50 flats or home units plus 1 space per 1,000 m2 of public area set aside for bar, tavern, lounge and restaurant*	200 units; App. 1,500m^2	6
	Total Volume of Service and Delivery Parking Required		6
	Total Volume of Service and Delivery Parking Provided by Proponent		N/A

Justification

Deliveries will likely be conducted via the proposed drop-off/pick-up area with separate parking spaces. Waste collection vehicles will not require a specific bay.

2.13 Calculation of Development Generated / Attracted Trips

What are the likely hours of operation?	Not applicable
What are the likely peak hours of operation?	AM 07:00 - 08:00 and PM 14:00 -15:00
Do the development generated peaks coincide with existing road network peaks?	YES
If YES, Which:	Partially both peaks
Guideline Document Used	**NSW RTA Guide to Traffic Generating Developments**
Rates from above document:	*Housing for aged and disabled persons:* • *1 - 2 vehicular trips per dwelling* • *PM Peak - 0.1 - 0.2 per dwelling.* *KCTT have also assumed 20 staff members on the premises for the ancillary uses – Café, Office, Residents Club House and Community Facilities.* *Similar to above, 2 VPD per staff member is applied and 0.5 VPH per staff member in peak hours given the different arriving times.*
Does the site have existing trip generation / attraction?	YES

Quadriplegic Centre

Based on the specific nature of the existing land use, KCTT have provided rates based on the available information on the centre's day-to-day operation:

- In 2021/2022 36 staff members were available on-site, across three shifts. Staff members make one vehicular movement when arriving at work and one when leaving work. Therefore 2 VPD per staff member is applied. Given staff works in shifts with the morning/daily shift being the busiest, KCTT have assumed 60% of 1 VPH per staff member for peak hours.
- In 2021/2022 on average 17 patients were using beds in the quadriplegic centre. If we assume that 7 patients were occupying beds during longer periods and 10 patients arrive and leave on the same day, the following applies: Similar to above, 2 VPD per daily patient is applied, and 1 VPH per patient for peak hour, which is a conservative scenario, assuming that all patients arrive and leave at the same time.
- Additionally, approximately 10 patients/patrons are assumed to be using the recreation centre within the Quadriplegic Centre. 2 VPD per patron and KCTT believe that the peak hour traffic will not coincide with the entire development traffic, therefore this is not included in the total peak calculation.

*Calculations on the following page.

Land Use Type	Rate above	Yield	Daily Traffic Generation	Peak Hour Traffic Generation	
				AM	PM
Existing					
Quadriplegic Centre – Staff members	Daily – 2 VPD per staff member AM peak – 0.6 VPH per staff member PM peak – 0.6 VPH per staff member	*36*	*72*	*21*	*21*
Quadriplegic Centre – Patients	Daily – 2 VPD per patient AM peak – 1 VPH per staff member PM peak – 1 VPH per staff member	*10*	*20*	*10*	*10*
Quadriplegic Centre – Recreation Centre Patrons	Daily – 2 VPD per patron AM peak – N/A PM peak – N/A	*10*	*20*	-	-
Proposed					
Independent Living Units	Daily – 2 VPD per unit AM peak – 0.2 VPH per unit PM peak – 0.2 VPH per unit	200 units	400	40	40
Ancillary Land Uses	Daily – 2 VPD per staff member AM peak – 0.5 VPH per staff member PM peak – 0.5 VPH per staff member	20 staff members	40	10	10
Total traffic from the proposed development (A)			**440**	**50**	**50**
Total Existing Traffic from the subject site (A^0)			**112**	**21**	**21**
Total Additional traffic from the proposed development (A-A^0)			**328**	**29**	**29**

What is the total impact of the new proposed development?	The additional impact from the proposed development is assessed by subtraction of existing traffic from the proposed traffic. The total additional impact will be 328 vehicular trips per day and 29 vehicular trips per hour in peak hours. According to WAPC guidelines, this is deemed a **moderate** impact on the network. KCTT believe the surrounding road network can accommodate additional traffic from the proposed development.

2.14 Traffic Flow Distribution

How many routes are available for access / egress to the site?	Three (3)
Route 1 / Movement 1	
Provide details for Route No 1	To/from the north via Orton Road > Selby Street
Percentage of Vehicular Movements via Route No 1	40% [176 VPD; AM 20 VPH; PM 20 VPH]
Route 2 / Movement 2	
Provide details for Route No 2	To/from the south via Orton Road > Selby Street
Percentage of Vehicular Movements via Route No 2	55% [242 VPD; AM 28 VPH; PM 28 VPH]
Route 3 / Movement 3	
Provide details for Route No 3	To/from the west via Orton Road
Percentage of Vehicular Movements via Route No 3	5% [22 VPD; AM 2 VPH; PM 2 VPH]

Note - For a more detailed plans of the estimated vehicular traffic volumes and distribution please refer to the plans provided in Appendix 2.

2.15 Vehicle Crossover Requirements

Are vehicle crossovers required onto existing road networks?	YES
How many existing crossovers?	
How many proposed crossovers?	Three proposed crossover - two for access to the parking area; one for access to the drop-off/pick-up area.

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

The proposed development will have more crossovers than the existing situation. The two crossovers for the large parking area would help with distributing traffic more evenly on Orton Road to prevent congestion.

How close are proposed crossovers to existing intersections?	app. 50m and more
Does this meet existing standards?	YES

2.16 Public Transport Accessibility

How many bus routes are within 400 metres of the subject site?	Three (3)
How many rail routes are within 800 metres of the subject site?	Two (2)

Bus Route	Description	Peak Frequency	Off-Peak Frequency
27	East Perth - Claremont Station via Bagot Road & Lemnos Street	10 minutes	60 minutes
998 (Ascot – Willetton)	CircleRoute - Clockwise	10 minutes	30 minutes
999 (Ascot – Willetton)	CircleRoute – Anti-Clockwise	10 minutes	30 minutes
Rail Route	**Description**	**Peak Frequency**	**Off-Peak Frequency**
Airport Line	High Wycombe - Claremont	12 minutes	30 minutes
Fremantle Line	Perth - Fremantle	6 minutes	30 minutes

Walk Score Rating for Accessibility to Public Transport

50 | Good Transit. Many nearby public transportation options.

2.17 Pedestrian Infrastructure

Describe existing local pedestrian infrastructure within a 400m radius of the site:	
Classification	**Road Name**
Pedestrian path is available.	
"Other Shared Path (Shared by Pedestrians and Cyclists)"	Selby Street
Does the site have existing pedestrian facilities	YES
Does the site propose to improve pedestrian facilities?	NO
What is the Walk Score Rating?	
32 | Car-Dependent. Most errands require a car.	

Note: Given the nature of the development, internal pedestrian movement design should account for the declining mobility of residents. All of the pedestrian paths should be:

- Step-free;
- Have a maximum 2.5% grade;
- Be a minimum of 1.8m wide at its narrowest point.

2.18 Cyclist Infrastructure

Are there any PBN Routes within an 800m radius of the subject site?	YES
If YES, describe:	
Classification	**Road Name**
"Principal Shared Path"	Between Railway and Stubbs Terrace
"High Quality Shared Path"	Underwood Avenue; Selby Street;
"Other Shared Path (Shared by Pedestrians and Cyclists)"	Selby Street; Lemnos Street
"Good Road Riding Environment"	Between Railway and Stubbs Terrace
"Perth Bicycle Network - Continuous Signed Routes"	NW12 – Lemnos Street; C2C – Underwood Avenue > Selby Street; Jersey Street
"Bicycle Lanes or Sealed Shoulder Either Side"	Lemnos Street; Between Railway and Stubbs Terrace
Are there any PBN Routes within a 400m radius of the subject site?	YES
If YES, describe:	
Classification	**Road Name**
"Other Shared Path (Shared by Pedestrians and Cyclists)"	Selby Street
Does the site have existing cyclist facilities?	YES
Does the site propose to improve cyclist facilities?	NO

2.19 Site-Specific Issues and Proposed Remedial Measures

How many site-specific issues need to be discussed?	One (1)
Site-Specific Issue No 1	Traffic Impact
Remedial Measure / Response	The additional traffic attracted to the subject site is expected to increase by a maximum of 328 vehicular trips per day and 29 vehicular trips in the peak hour. Orton Road is classified as an Access Road as per MRWA classification with the maximum desirable volume of 3,000 vehicles per day. Currently there are no publicly available traffic counts for this road. However, given this road provides access to the higher road hierarchy network for several similar and other low traffic generating developments, it is unlikely that Orton Road carries over 2,000 VPD. Therefore, with the added traffic from the subject site the street would remain well under the maximum desirable traffic volume for Access Roads. Other surrounding roads would absorb significantly less traffic than Orton Road, moreover, the traffic would be dispersed so that the impact can be considered negligible.

Appendix 1

The Layout of the Proposed Development

FECA SCHEDULE (EXCLUDES BALCONY AREAS)

	COMMUNITY	BLOCK A	BLOCK B	BLOCK C	BLOCK D	BLOCK E	SUBTOTAL
GROUND LEVEL	1120 m²	680 m²	385 m²	625 m²	460 m²	460 m²	3,730 m²
LEVEL 1	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 2	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 3	- m²	- m²	- m²	1,150 m²	1,150 m²	1,150 m²	3,450 m²
LEVEL 4	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²
LEVEL 5	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²

sph architecture + interiors
T: 08 9284 1888
E: mail@sph.net.au
Studio: 143 Cambridge Street
West Leederville WA 6007
ABN: 88123 655 176 ABWA: 2115

SITE DEVELOPMENT
ALINEA SHENTON PARK

LOT 47 ORTON ROAD, SHENTON PARK

REV	BY	DATE	DESCRIPTION

GROUND FLOOR

SCHEMATIC DESIGN

SCALE AT A1:	CAD FILE No:	DATE:	DRN:	CKD:
1 : 300	622060.rvt	07/06/23	JL	MC

PROJECT No:	DRAWING No:	REVISION:
622060	SK01	

8/06/2023 10:17:32 AM

FECA SCHEDULE (EXCLUDES BALCONY AREAS)							
	COMMUNITY	BLOCK A	BLOCK B	BLOCK C	BLOCK D	BLOCK E	SUBTOTAL
GROUND LEVEL	1120 m²	680 m²	385 m²	625 m²	460 m²	460 m²	3,730 m²
LEVEL 1	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 2	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 3	- m²	- m²	- m²	1,150 m²	1,150 m²	1,150 m²	3,450 m²
LEVEL 4	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²
LEVEL 5	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²

18m BUSH FIRE SET BACK

BLOCK C APT 76 m² | BLOCK C APT 98 m² | BLOCK C APT 86 m² | BLOCK C APT 86 m²
BLOCK C APT 86 m² | BLOCK C APT 86 m²
BLOCK C APT 86 m² | BLOCK C APT 106 m² | BLOCK C APT 86 m² | BLOCK C APT 86 m² | BLOCK C APT 86 m²
BLOCK C APT 86 m²

BLOCK D APT 86 m² | BLOCK D APT 86 m² | BLOCK D APT 86 m² | BLOCK D APT 98 m²
BLOCK D APT 86 m² | BLOCK D APT 86 m² | BLOCK D APT 86 m² | BLOCK D APT 86 m²
BLOCK D APT 99 m² | BLOCK D APT 86 m²
BLOCK D APT 86 m²

BLOCK B APT 86 m² | BLOCK B APT 103 m² | BLOCK B APT 86 m²
BLOCK B APT 86 m² | BLOCK B APT 86 m² | BLOCK B APT 86 m² | BLOCK B APT 86 m²
BLOCK B APT 86 m² | BLOCK B APT 86 m² | BLOCK B APT 62 m² | BLOCK B APT 61 m²

RESIDENT
CLUB HOUSE

BLOCK E APT 86 m² | BLOCK E APT 86 m²
BLOCK E APT 86 m² | BLOCK E APT 86 m²
BLOCK E APT 86 m² | BLOCK E APT 86 m²
BLOCK E APT 94 m² | BLOCK E APT 86 m²
BLOCK E APT 86 m² | BLOCK E APT 86 m²
BLOCK E APT 86 m²

BLOCK A APT 86 m² | BLOCK A APT 86 m² | BLOCK A APT 86 m²
BLOCK A APT 86 m² | BLOCK A APT 86 m²
BLOCK A APT 86 m² | BLOCK A APT 86 m² | BLOCK A APT 86 m² | BLOCK A APT 86 m²

NORTH

sph architecture + interiors
T: 08 9284 1888
E: mail@sph.net.au
Studio: 143 Cambridge Street
West Leederville WA 6007
ABN: 88123 655 176 ABWA: 2115

SITE DEVELOPMENT
ALINEA SHENTON PARK

LOT 47 ORTON ROAD, SHENTON PARK

REV	BY	DATE	DESCRIPTION

LEVEL 1

SCHEMATIC DESIGN

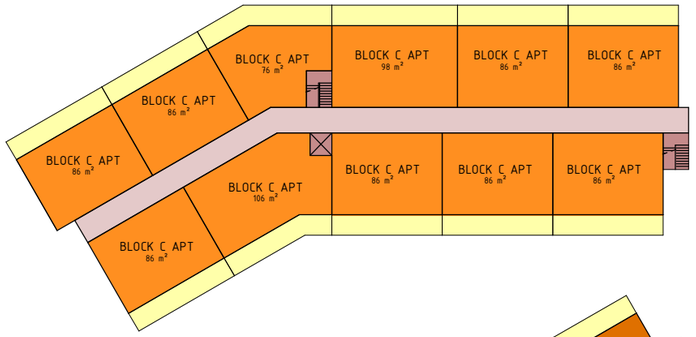
SCALE AT A1:	CAD FILE No:	DATE:	DRN:	CKD:
1 : 300	622060.rvt	07/06/23	JL	MC

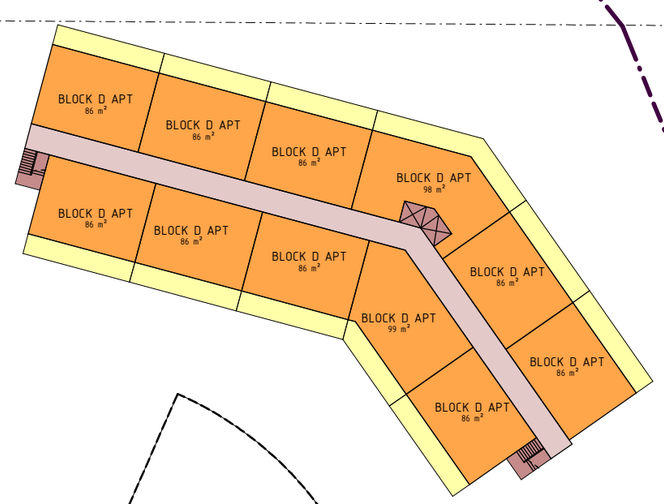
PROJECT No:	DRAWING No:	REVISION:
622060	SK02	

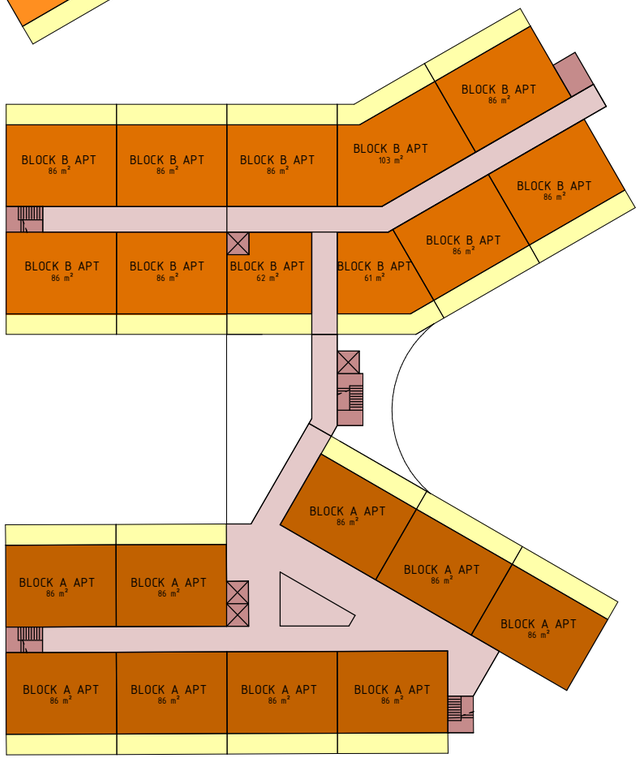
8/06/2023 9:47:59 AM

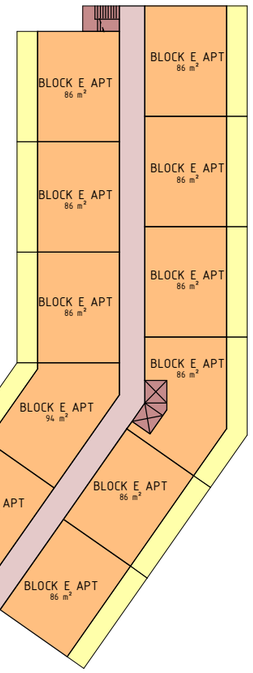
FECA SCHEDULE (EXCLUDES BALCONY AREAS)							
	COMMUNITY	BLOCK A	BLOCK B	BLOCK C	BLOCK D	BLOCK E	SUBTOTAL
GROUND LEVEL	1120 m²	680 m²	385 m²	625 m²	460 m²	460 m²	3,730 m²
LEVEL 1	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 2	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 3	- m²	- m²	- m²	1,150 m²	1,150 m²	1,150 m²	3,450 m²
LEVEL 4	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²
LEVEL 5	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²

18m BUSH FIRE SET BACK









NORTH

sph architecture + interiors
T: 08 9284 1888
E: mail@sph.net.au
Studio: 143 Cambridge Street
West Leederville WA 6007
ABN: 88123 655 176 ABWA: 2115

SITE DEVELOPMENT
ALINEA SHENTON PARK

LOT 47 ORTON ROAD, SHENTON PARK

REV	BY	DATE	DESCRIPTION

LEVEL 2

SCHEMATIC DESIGN

SCALE AT A1:	CAD FILE No:	DATE:	DRN:	CKD:
1 : 300	622060.rvt	07/06/23	JL	MC

PROJECT No:	DRAWING No:	REVISION:
622060	SK03	

8/06/2023 9:47:44 AM

FECA SCHEDULE (EXCLUDES BALCONY AREAS)							
	COMMUNITY	BLOCK A	BLOCK B	BLOCK C	BLOCK D	BLOCK E	SUBTOTAL
GROUND LEVEL	1120 m²	680 m²	385 m²	625 m²	460 m²	460 m²	3,730 m²
LEVEL 1	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 2	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 3	- m²	- m²	- m²	1,150 m²	1,150 m²	1,150 m²	3,450 m²
LEVEL 4	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²
LEVEL 5	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²

18m BUSH FIRE SET BACK

BLOCK C APT 76 m²
BLOCK C APT 98 m²
BLOCK C APT 86 m²
BLOCK C APT 86 m²
BLOCK C APT 86 m²
BLOCK C APT 86 m²
BLOCK C APT 106 m²
BLOCK C APT 86 m²
BLOCK C APT 86 m²
BLOCK C APT 86 m²
BLOCK C APT 86 m²

BLOCK D APT 86 m²
BLOCK D APT 86 m²
BLOCK D APT 86 m²
BLOCK D APT 98 m²
BLOCK D APT 86 m²
BLOCK D APT 86 m²
BLOCK D APT 86 m²
BLOCK D APT 86 m²
BLOCK D APT 99 m²
BLOCK D APT 86 m²
BLOCK D APT 86 m²

BLOCK B

BLOCK A

BLOCK E APT 86 m²
BLOCK E APT 86 m²
BLOCK E APT 86 m²
BLOCK E APT 86 m²
BLOCK E APT 86 m²
BLOCK E APT 86 m²
BLOCK E APT 94 m²
BLOCK E APT 86 m²
BLOCK E APT 86 m²
BLOCK E APT 86 m²

NORTH

sph architecture + interiors
T: 08 9284 1888
E: mail@sph.net.au
Studio: 143 Cambridge Street
West Leederville WA 6007
ABN: 88123 655 176 ABWA: 2115

SITE DEVELOPMENT
ALINEA SHENTON PARK

LOT 47 ORTON ROAD, SHENTON PARK

REV	BY	DATE	DESCRIPTION

LEVEL 3

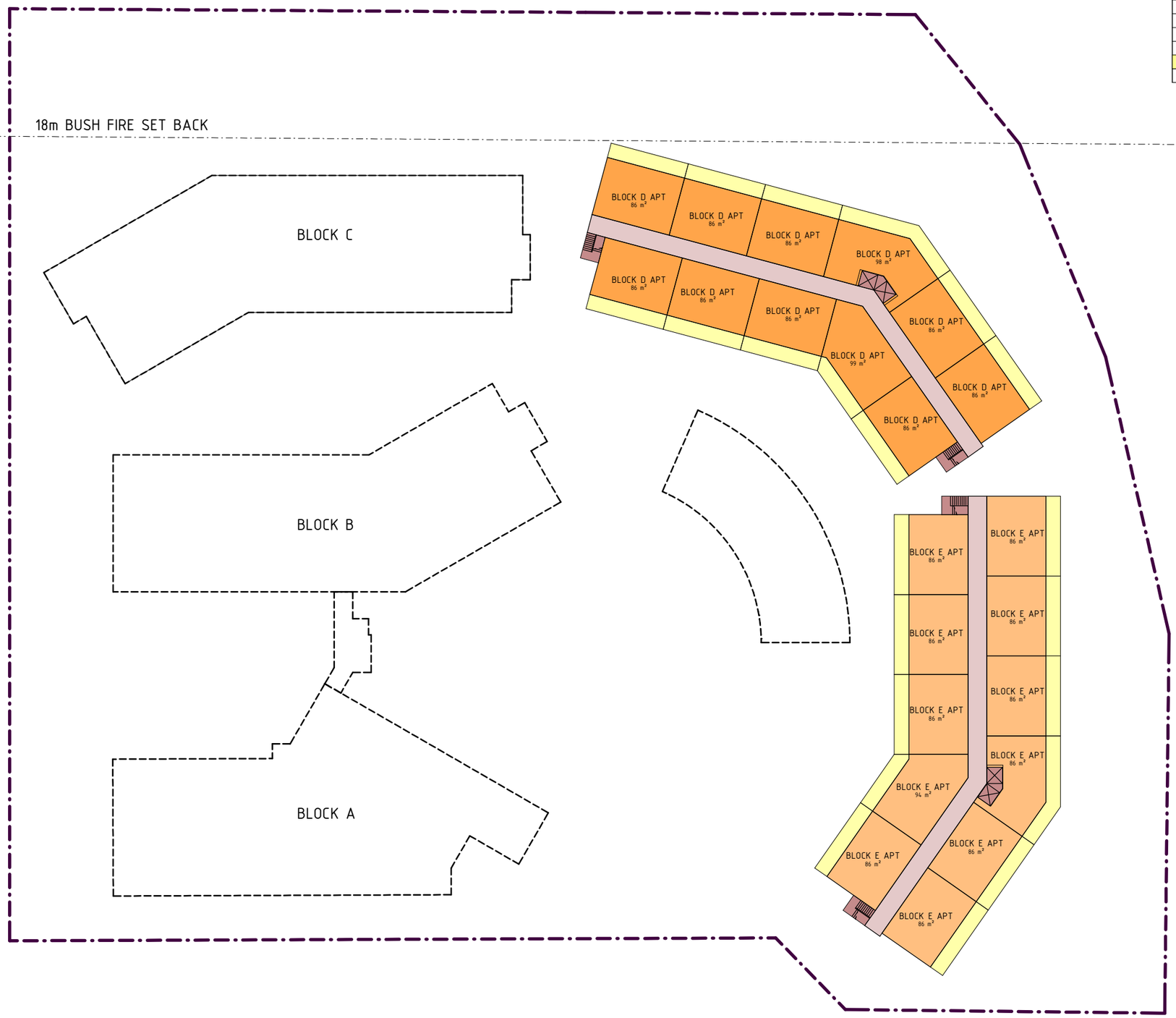
SCHEMATIC DESIGN

SCALE AT A1:	CAD FILE No:	DATE:	DRN:	CKD:
1 : 300	622060.rvt	07/06/23	JL	MC

PROJECT No:	DRAWING No:	REVISION:
622060	SK04	

8/06/2023 9:47:50 AM

FECA SCHEDULE (EXCLUDES BALCONY AREAS)							
	COMMUNITY	BLOCK A	BLOCK B	BLOCK C	BLOCK D	BLOCK E	SUBTOTAL
GROUND LEVEL	1120 m²	680 m²	385 m²	625 m²	460 m²	460 m²	3,730 m²
LEVEL 1	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 2	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 3	- m²	- m²	- m²	1,150 m²	1,150 m²	1,150 m²	3,450 m²
LEVEL 4	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²
LEVEL 5	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²



NORTH

sph architecture + interiors
T: 08 9284 1888
E: mail@sph.net.au
Studio: 143 Cambridge Street
West Leederville WA 6007
ABN: 88123 655 176 ABWA: 2115

SITE DEVELOPMENT
ALINEA SHENTON PARK

LOT 47 ORTON ROAD, SHENTON PARK

REV	BY	DATE	DESCRIPTION

LEVEL 4

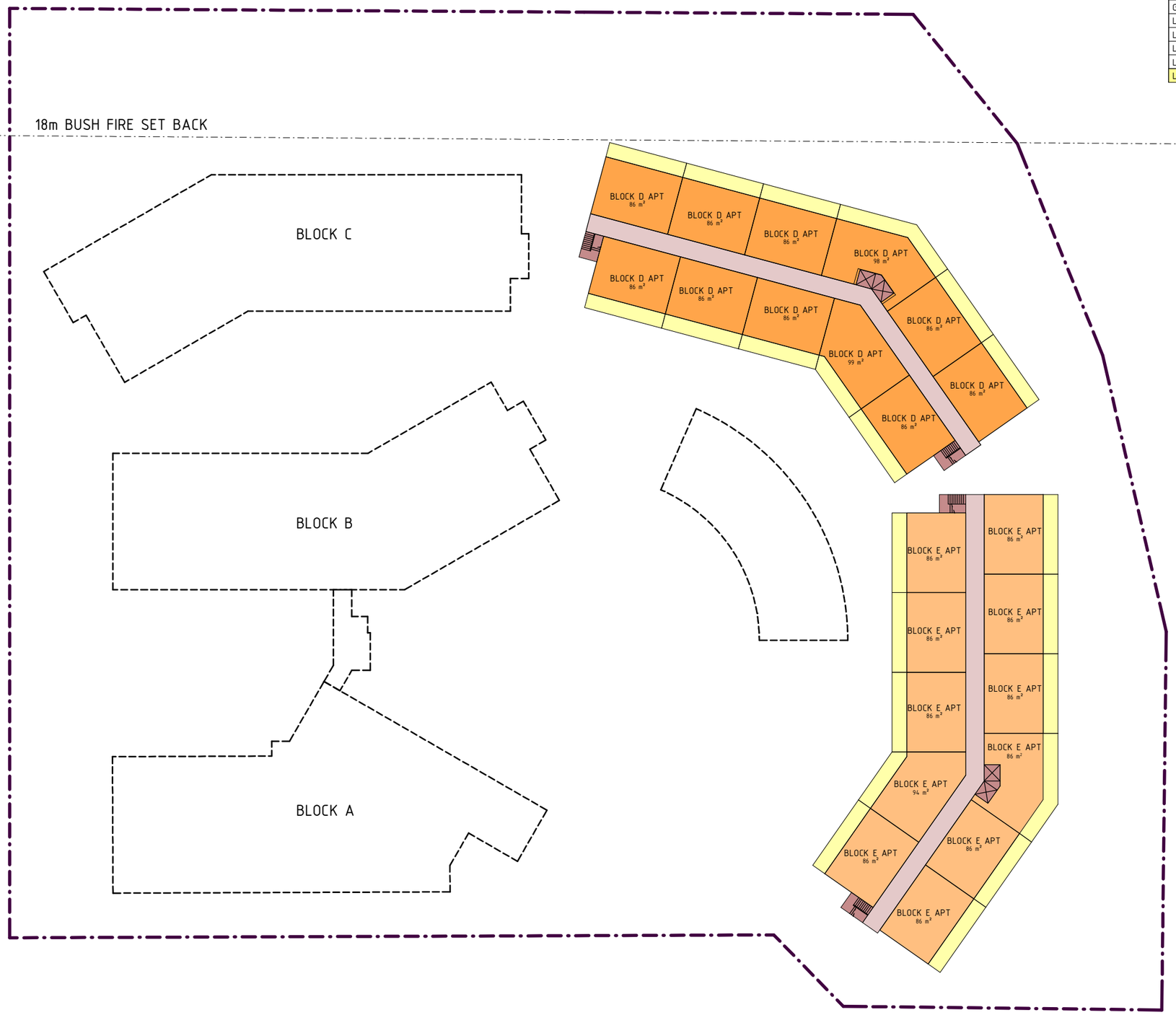
SCHEMATIC DESIGN

SCALE AT A1:	CAD FILE No:	DATE:	DRN:	CKD:
1 : 300	622060.rvt	07/06/23	JL	MC

PROJECT No:	DRAWING No:	REVISION:
622060	SK05	

8/06/2023 9:47:55 AM

FECA SCHEDULE (EXCLUDES BALCONY AREAS)							
	COMMUNITY	BLOCK A	BLOCK B	BLOCK C	BLOCK D	BLOCK E	SUBTOTAL
GROUND LEVEL	1120 m²	680 m²	385 m²	625 m²	460 m²	460 m²	3,730 m²
LEVEL 1	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 2	- m²	1,070 m²	1,100 m²	1,150 m²	1,150 m²	1,150 m²	5,620 m²
LEVEL 3	- m²	- m²	- m²	1,150 m²	1,150 m²	1,150 m²	3,450 m²
LEVEL 4	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²
LEVEL 5	- m²	- m²	- m²	- m²	1,150 m²	1,150 m²	2,300 m²



NORTH

sph architecture + interiors
T: 08 9284 1888
E: mail@sph.net.au
Studio: 143 Cambridge Street
West Leederville WA 6007
ABN: 88123 655 176 ABWA: 2115

SITE DEVELOPMENT
ALINEA SHENTON PARK

LOT 47 ORTON ROAD, SHENTON PARK

REV	BY	DATE	DESCRIPTION

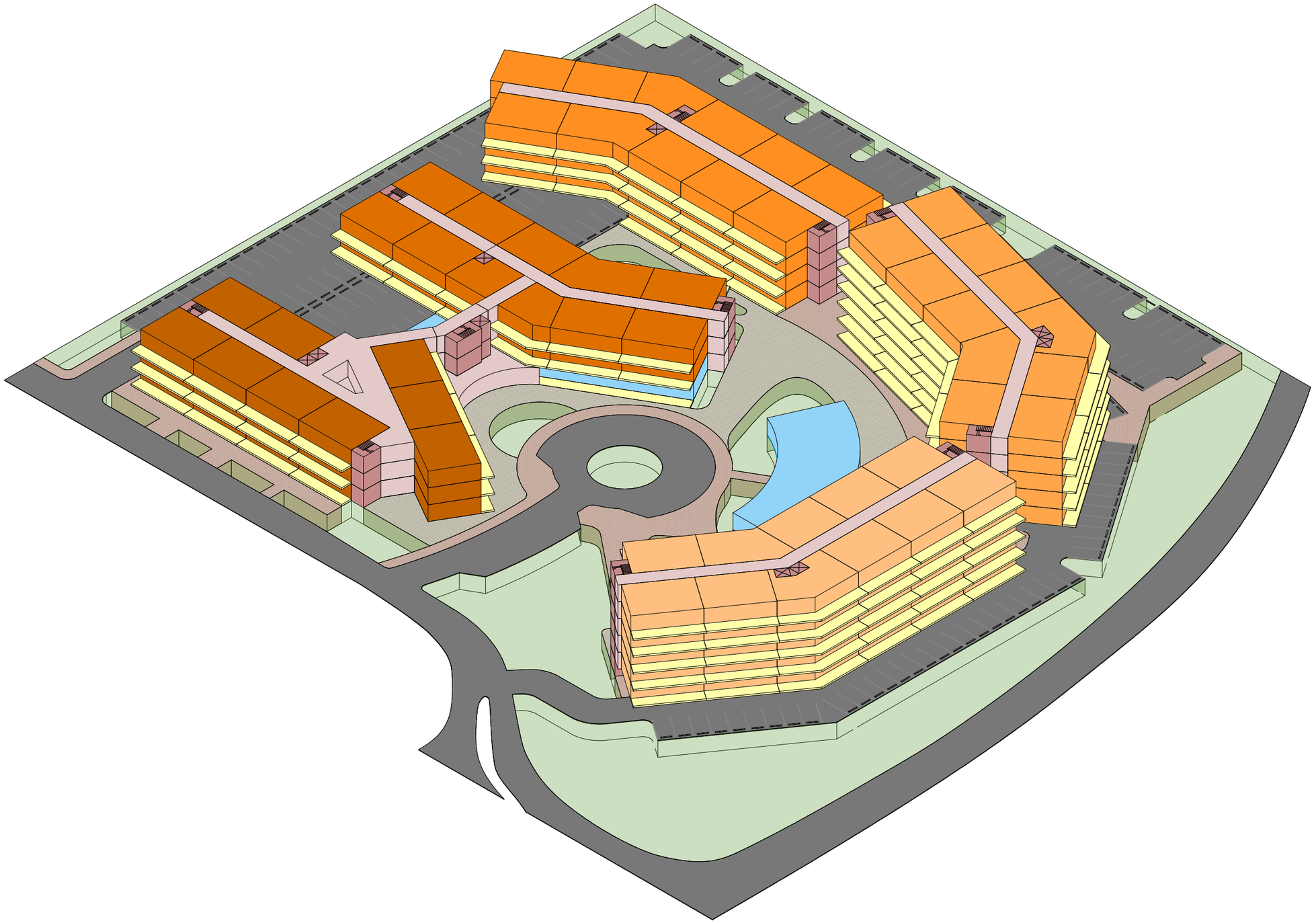
LEVEL 5

SCHEMATIC DESIGN

SCALE AT A1:	CAD FILE No:	DATE:	DRN:	CKD:
1 : 300	622060.rvt	07/06/23	JL	MC

PROJECT No:	DRAWING No:	REVISION:
622060	SK06	

8/06/2023 10:23:53 AM



sph architecture + interiors
T: 08 9284 1888
E: mail@sph.net.au
Studio: 143 Cambridge Street
West Leederville WA 6007
ABN: 88123 655 176 ABWA: 2115

SITE DEVELOPMENT
ALINEA SHENTON PARK

LOT 47 ORTON ROAD, SHENTON PARK

REV	BY	DATE	DESCRIPTION

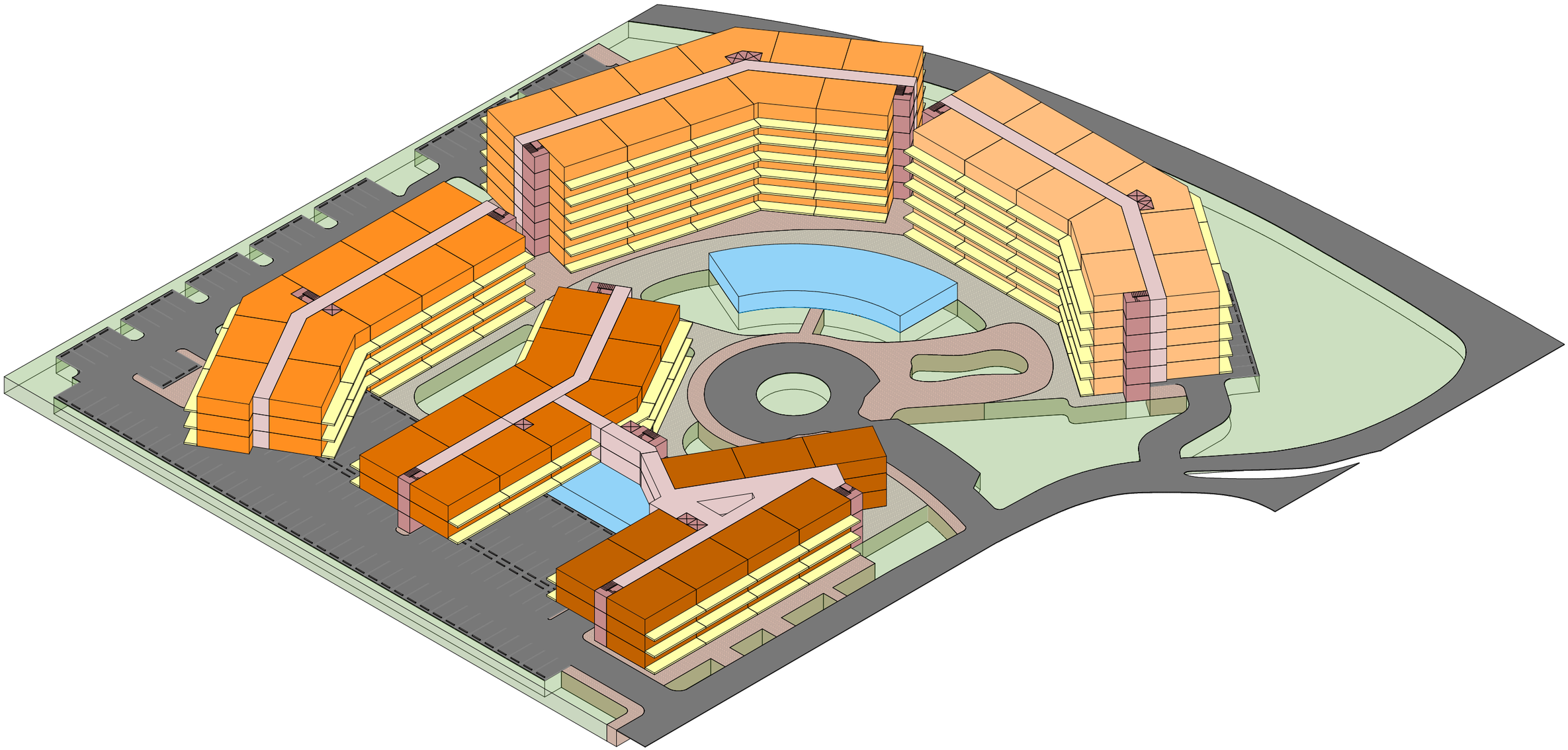
3D VIEW 1

SCHEMATIC DESIGN

SCALE AT A1:	CAD FILE No:	DATE:	DRN:	CKD:
AS SHOWN	622060.rvt	07/06/23	JL	MC

PROJECT No:	DRAWING No:	REVISION:
622060	SK07	

8/06/2023 10:16:07 AM



NORTH

sph architecture + interiors
T: 08 9284 1888
E: mail@sph.net.au
Studio: 143 Cambridge Street
West Leederville WA 6007
ABN: 88123 655 176 ABWA: 2115

SITE DEVELOPMENT
ALINEA SHENTON PARK

LOT 47 ORTON ROAD, SHENTON PARK

REV	BY	DATE	DESCRIPTION

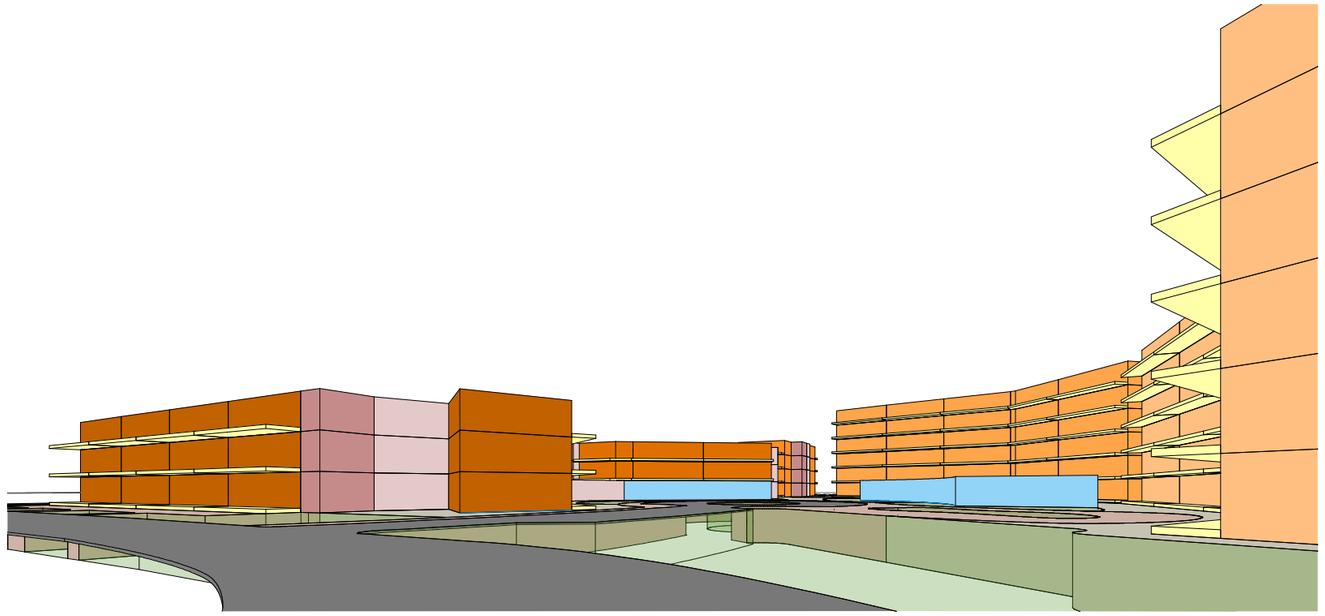
3D VIEW 2

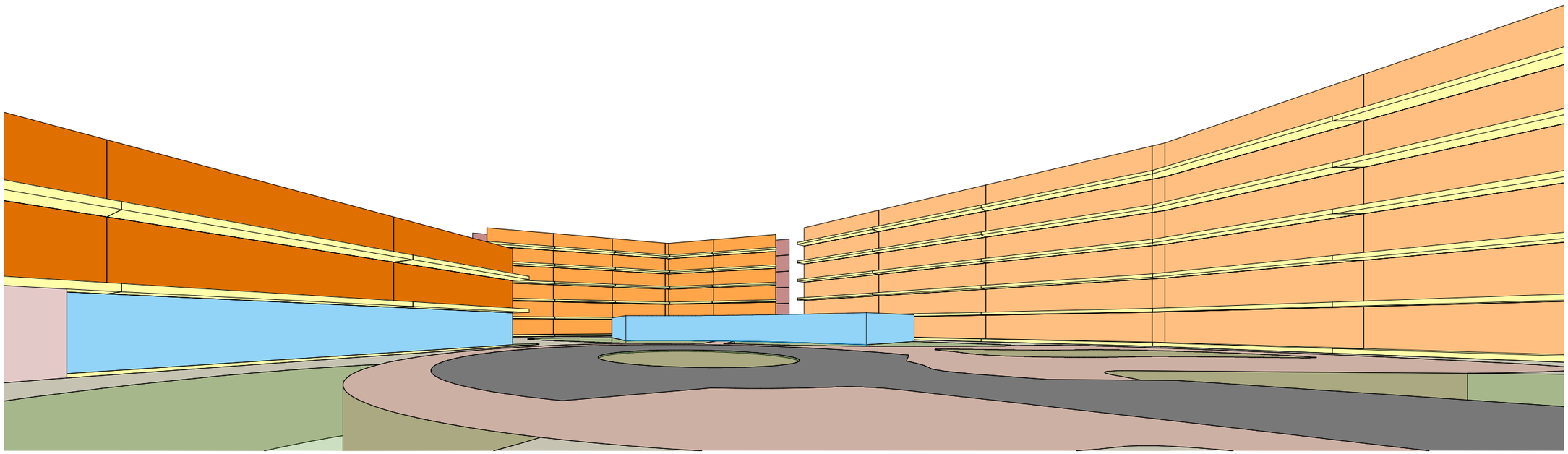
SCHEMATIC DESIGN

SCALE AT A1:	CAD FILE No:	DATE:	DRN:	CKD:
AS SHOWN	622060.rvt	07/06/23	JL	MC

PROJECT No:	DRAWING No:	REVISION:
622060	SK08	

8/06/2023 10:16:24 AM





sph architecture + interiors

T: 08 9284 1888
E: mail@sph.net.au
Studio: 143 Cambridge Street
West Leederville WA 6007
ABN: 88123 655 176 ABWA: 2115

SITE DEVELOPMENT
ALINEA SHENTON PARK

LOT 47 ORTON ROAD, SHENTON PARK

REV	BY	DATE	DESCRIPTION

3D PERSPECTIVES

SCHEMATIC DESIGN

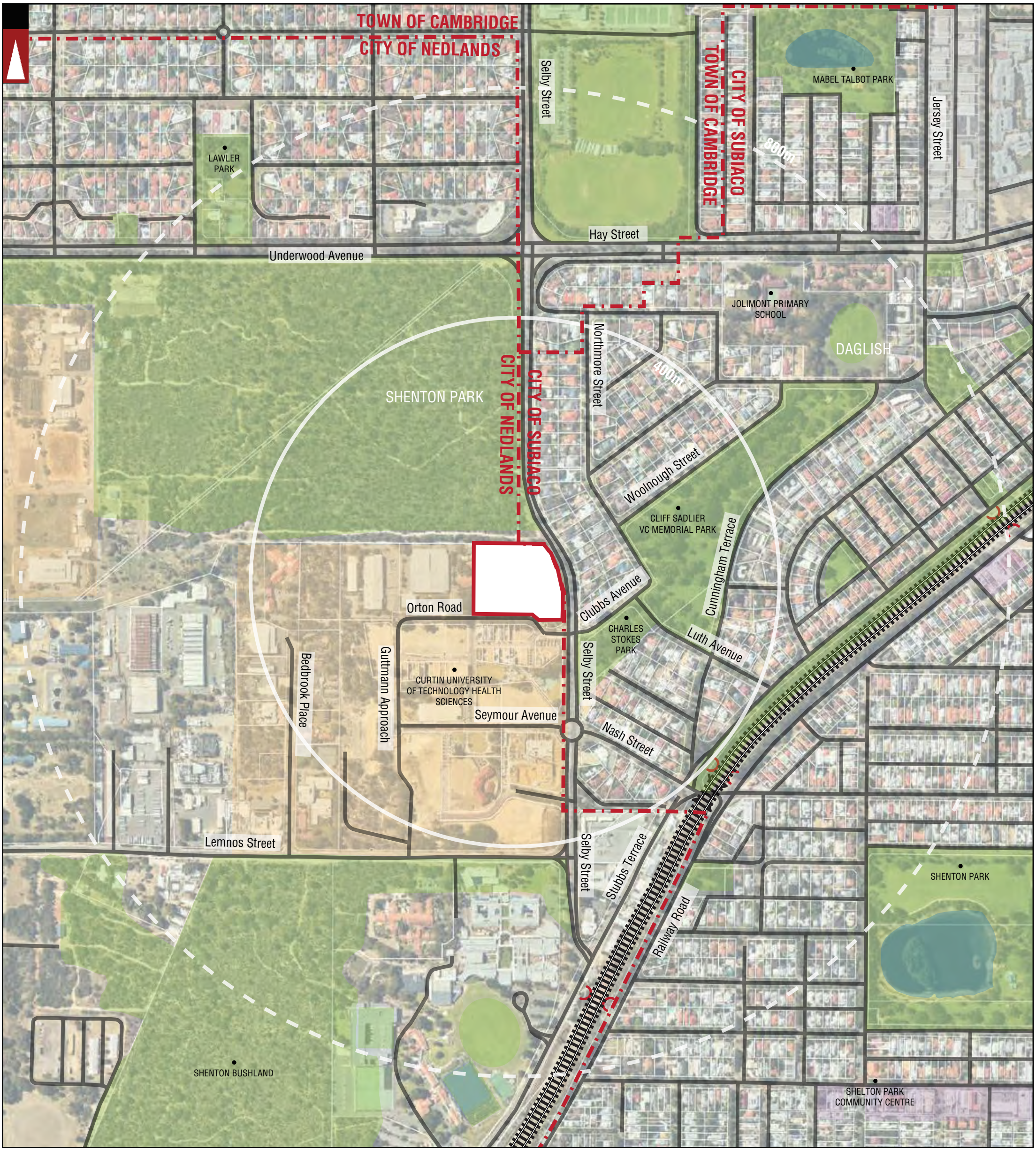
SCALE AT A1:	CAD FILE No:	DATE:	DRN:	CKD:
AS SHOWN	622060.rvt	07/06/23	JL	MC

PROJECT No:	DRAWING No:	REVISION:
622060	SK09	

8/06/2023 10:16:53 AM

Appendix 2

Transport Planning and Traffic Plans



PARKS AND RECREATION
WATERWAYS
PUBLIC PURPOSE
SHOPPING AREA

ROAD
Hay Street — STREET NAME
RAILWAY
ROAD BRIDGE

LOCATION BOUNDARY
DISTANCE FROM LOCATION
CITY OF NEDLANDS — LOCAL GOVERNMENT NAME
SHENTON PARK — SUBURB NAME
LOCAL AUTHORITY BOUNDARY

LEGEND

No	DATE	AMENDMENT
A	23-10-2023	ISSUED FOR REVIEW

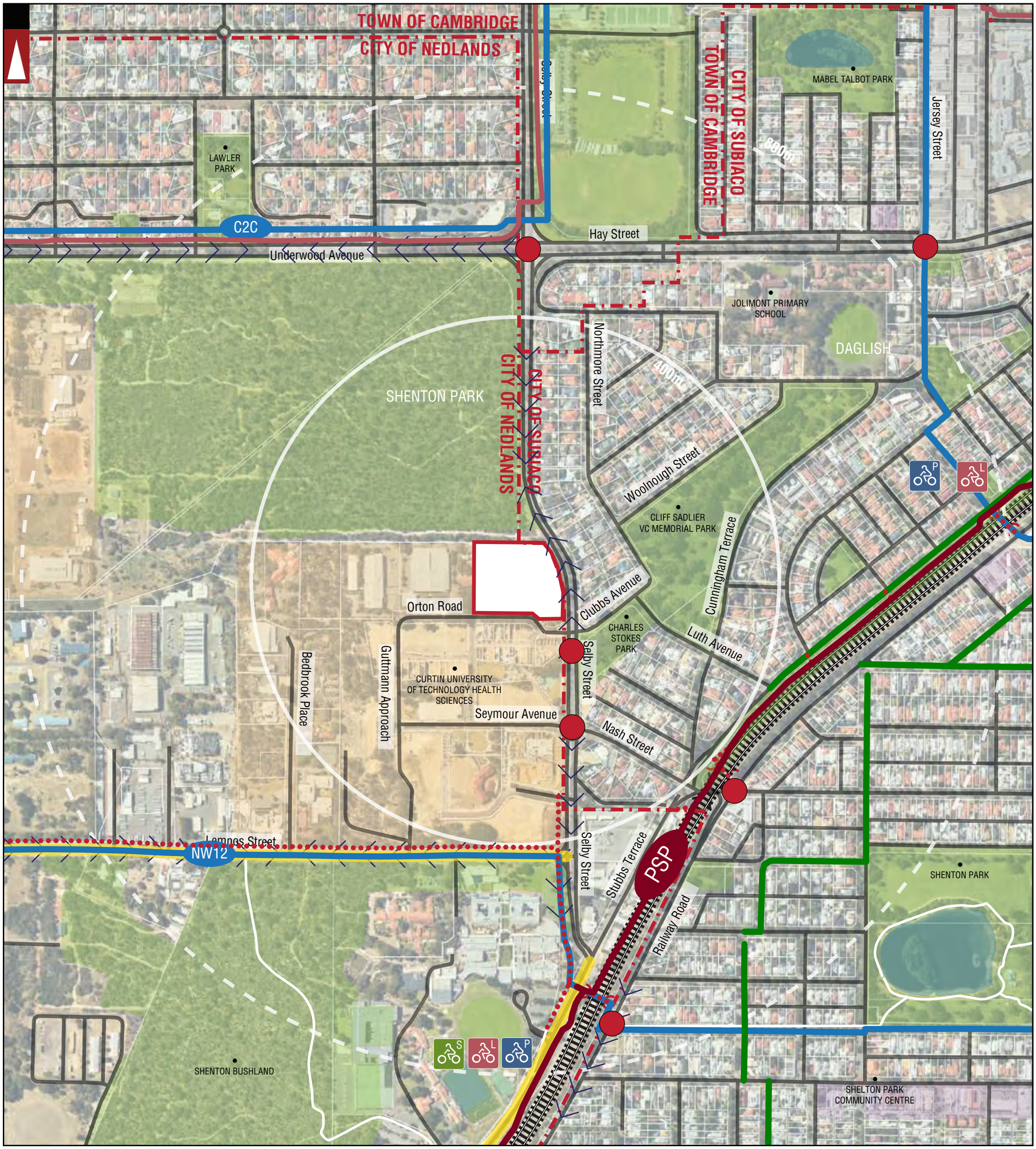
PROJECT: LOT 47 ORTON ROAD, SHENTON PARK

TITLE: LOCALITY PLAN - 800M RADIUS

DRAWING NUMBER: KC01649.000_ S01

DRAWN BY: N.M.

Civil & Traffic Engineering Consultants
KCTT (Trading as KC Traffic and Transport Pty Ltd)
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au



PARKS AND RECREATION
WATERWAYS
PUBLIC PURPOSE
SHOPPING AREA
ROAD
Hay Street STREET NAME
RAILWAY
ROAD BRIDGE
LOCATION BOUNDARY
DISTANCE FROM LOCATION
CITY OF NEDLANDS LOCAL GOVERNMENT NAME
SHENTON PARK SUBURB NAME
LOCAL AUTHORITY BOUNDARY
PSP PRINCIPAL SHARED PATH (PSP)
HIGH QUALITY SHARED PATH
OTHER SHARED PATH (SHARED BY PEDESTRIANS & CYCLISTS)
GOOD ROAD RIDING ENVIRONMENT
BICYCLE LANES OR SEALED SHOULDER EITHER SIDE
NW12 PERTH BICYCLE NETWORK (PBN) - CONTINUOUS SIGNED ROUTES
GRADIENT ARROW
WALKING TRAIL
TRAFFIC LIGHT
BIKE LOCKER
BIKE SHELTER
BIKE PARKING

LEGEND

No	DATE	AMENDMENT
A	23-10-2023	ISSUED FOR REVIEW

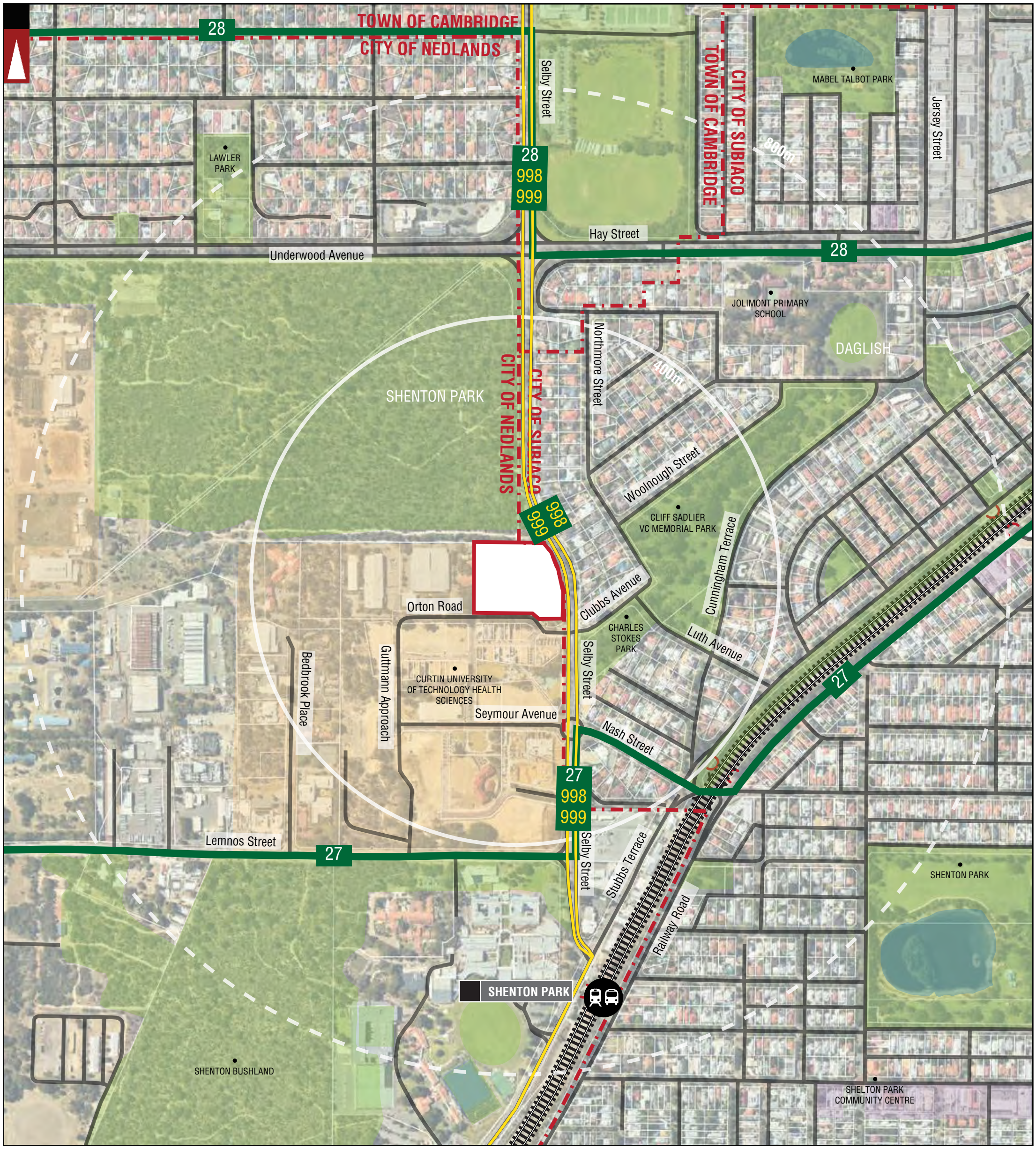
PROJECT: LOT 47 ORTON ROAD, SHENTON PARK

TITLE: BICYCLE NETWORK PLAN - 800M RADIUS

DRAWING NUMBER: KC01649.000_ S02

DRAWN BY: N.M.

Civil & Traffic Engineering Consultants
KCTT (Trading as KC Traffic and Transport Pty Ltd)
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au



PARKS AND RECREATION
WATERWAYS
PUBLIC PURPOSE
SHOPPING AREA
ROAD
Hay Street STREET NAME
RAILWAY
ROAD BRIDGE
LOCATION BOUNDARY
DISTANCE FROM LOCATION
CITY OF NEDLANDS LOCAL GOVERNMENT NAME
SHENTON PARK SUBURB NAME
LOCAL AUTHORITY BOUNDARY
BUS ROUTES
HIGH FREQUENCY BUS ROUTE
TRAIN AND BUS TRANSFER
103 BUS ROUTE NUMBER
990 HIGH FREQUENCY BUS ROUTE NUMBER

NOTE : FOR MORE INFORMATION REGARDING THE DESCRIPTION OF BUS ROUTES AND THEIR INDICATIVE PEAK AND OFF-PEAK FREQUENCIES REFER TO THE REPORT.

LEGEND

No	DATE	AMENDMENT
A	23-10-2023	ISSUED FOR REVIEW

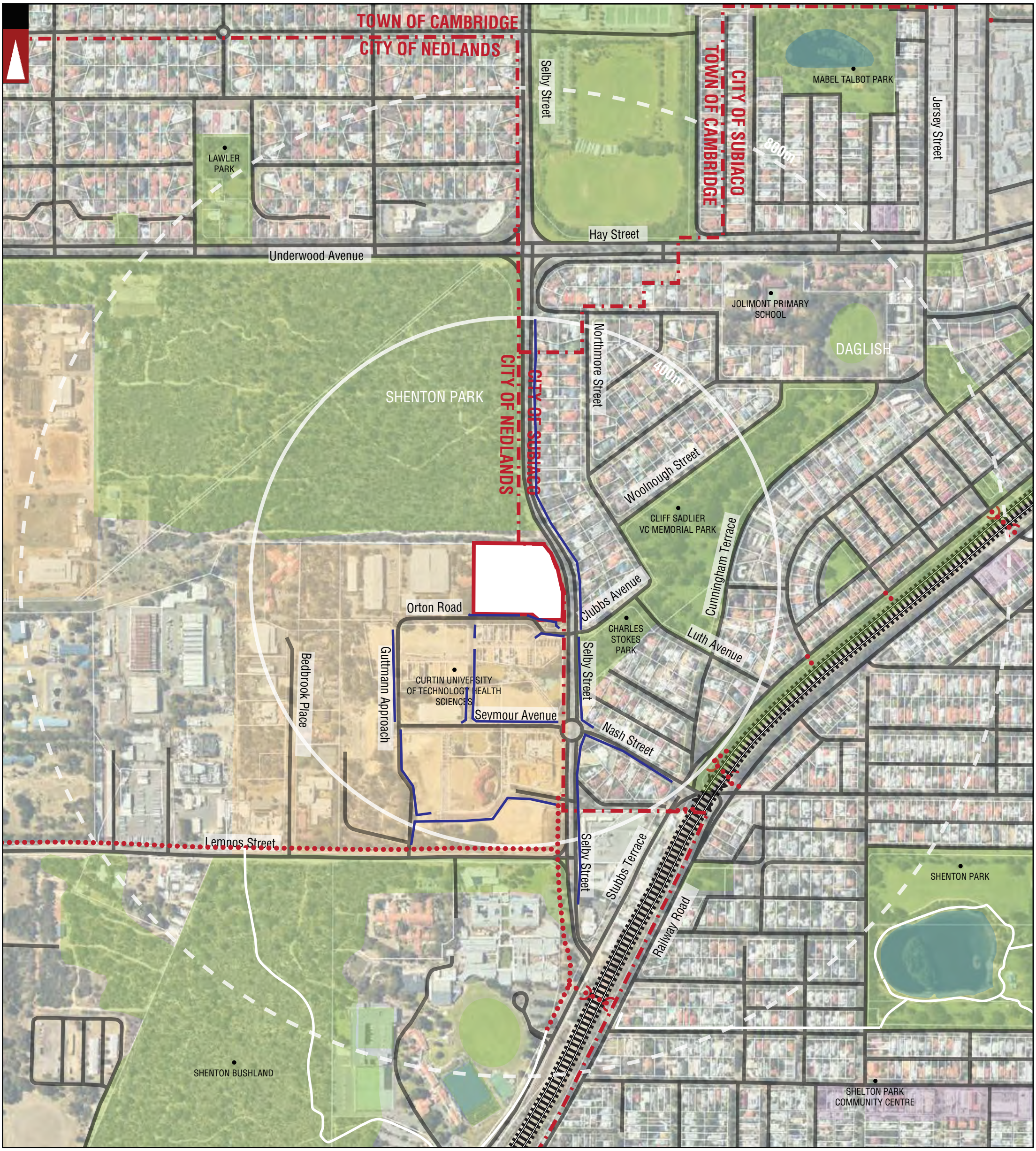
PROJECT: LOT 47 ORTON ROAD, SHENTON PARK

TITLE: PUBLIC TRANSPORT PLAN - 800M RADIUS

DRAWING NUMBER: KC01649.000_ S03

DRAWN BY: N.M.

Civil & Traffic Engineering Consultants
KCTT (Trading as KC Traffic and Transport Pty Ltd)
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au



PARKS AND RECREATION
WATERWAYS
PUBLIC PURPOSE
SHOPPING AREA

ROAD
Hay Street — STREET NAME
RAILWAY
ROAD BRIDGE

LOCATION BOUNDARY
DISTANCE FROM LOCATION
CITY OF NEDLANDS — LOCAL GOVERNMENT NAME
SHENTON PARK — SUBURB NAME
LOCAL AUTHORITY BOUNDARY

OTHER SHARED PATH (SHARED BY PEDESTRIANS & CYCLISTS)
PEDESTRIAN PATH
WALKING TRAIL

LEGEND

No	DATE	AMENDMENT
A	23-10-2023	ISSUED FOR REVIEW

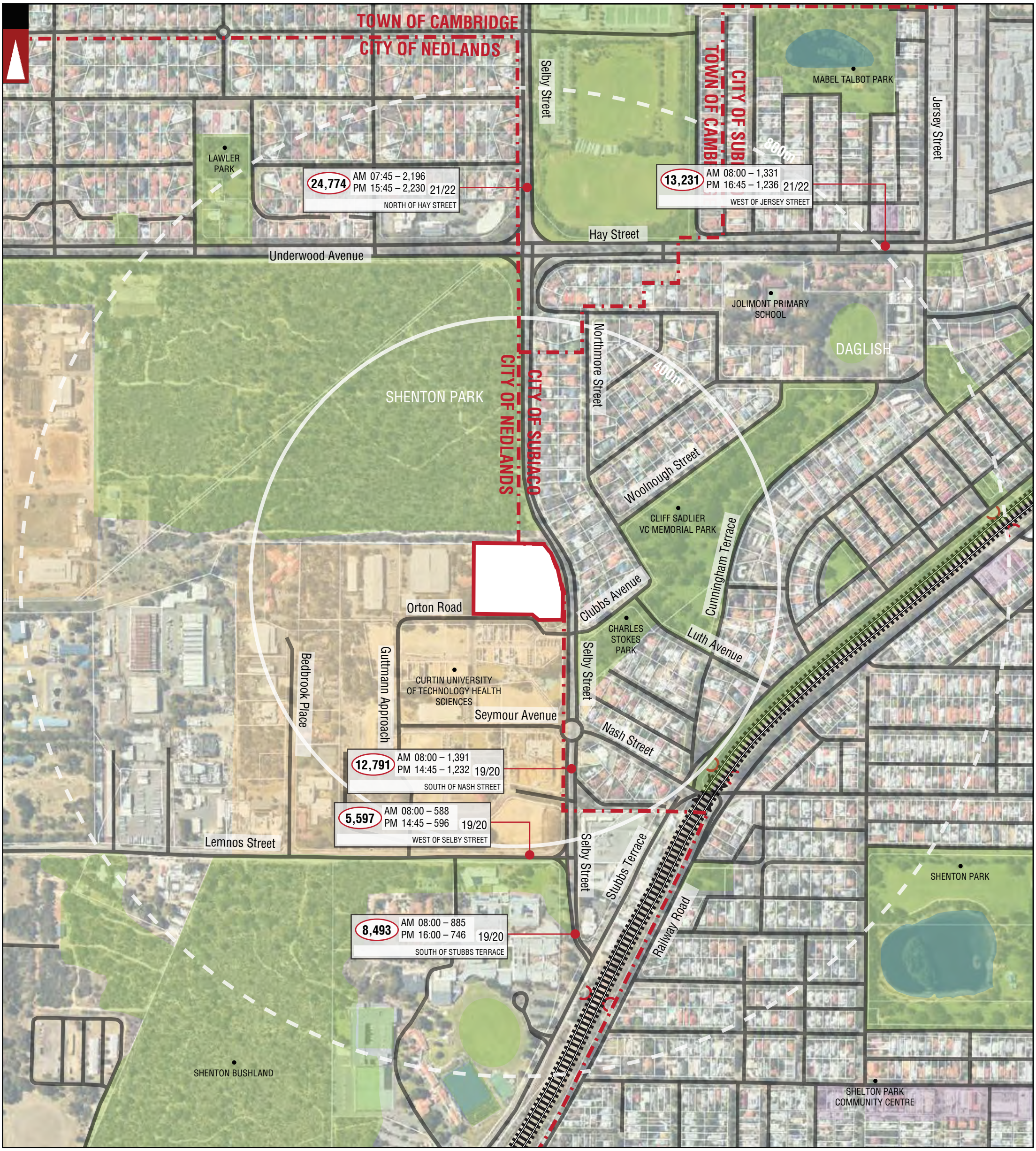
PROJECT: LOT 47 ORTON ROAD, SHENTON PARK

TITLE: PEDESTRIAN PATHS PLAN - 800M RADIUS

DRAWING NUMBER: KC01649.000_ S04

DRAWN BY: N.M.

Civil & Traffic Engineering Consultants
KCTT (Trading as KC Traffic and Transport Pty Ltd)
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au



PARKS AND RECREATION
WATERWAYS
PUBLIC PURPOSE
SHOPPING AREA

ROAD
Hay Street — STREET NAME
RAILWAY
ROAD BRIDGE

LOCATION BOUNDARY
DISTANCE FROM LOCATION
CITY OF NEDLANDS — LOCAL GOVERNMENT NAME
SHENTON PARK — SUBURB NAME
LOCAL AUTHORITY BOUNDARY

5,512 — NUMBER OF VEHICLES PER DAY
AM 1145 – 381 / PM 1630 – 480 — NUMBER OF VEHICLES PER AM PEAK HOUR / NUMBER OF VEHICLES PER PM PEAK HOUR
2014 — YEAR
EAST OF HARLOW ROAD — LOCATION

LEGEND

No	DATE	AMENDMENT
A	23-10-2023	ISSUED FOR REVIEW

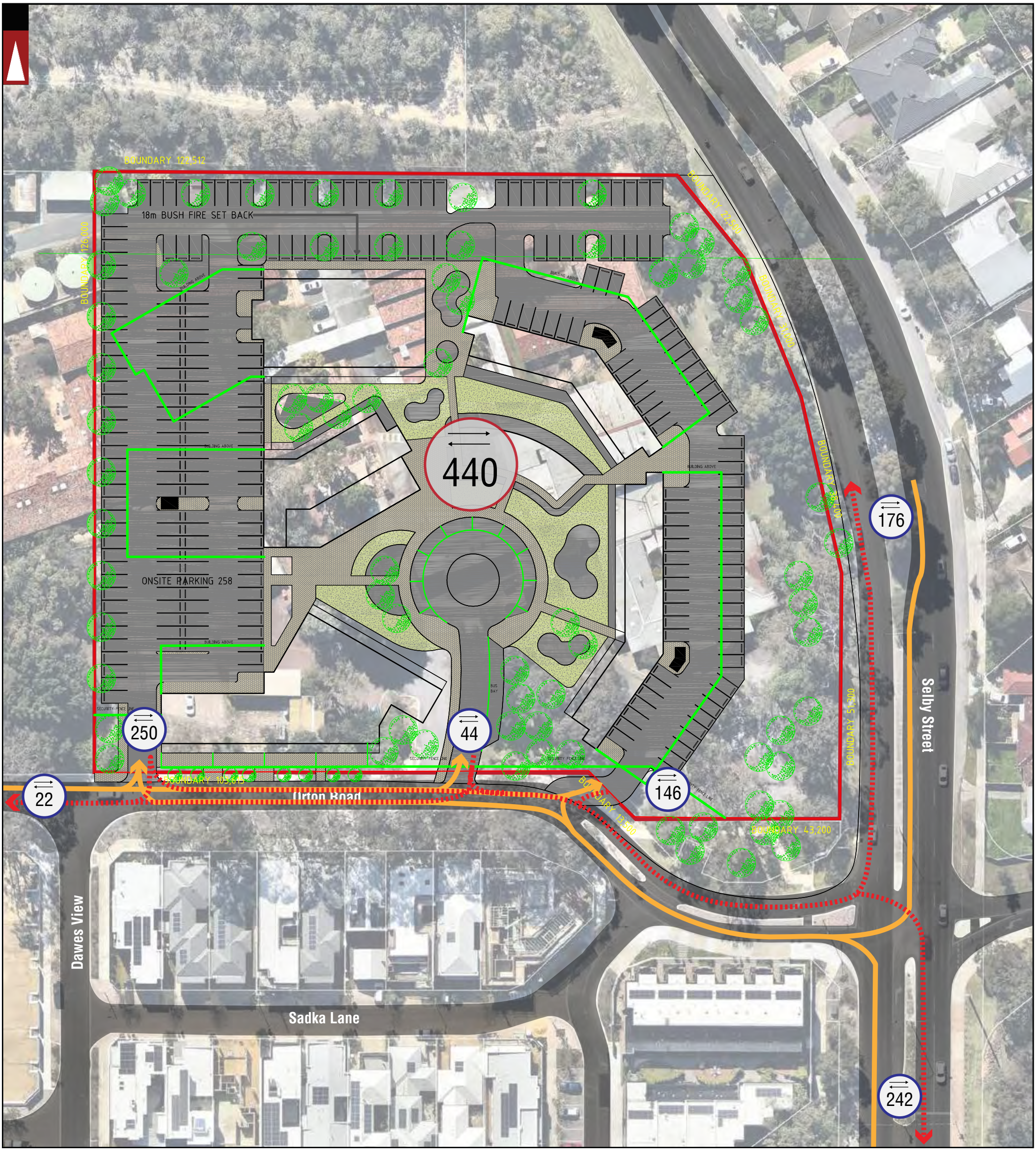
PROJECT: LOT 47 ORTON ROAD, SHENTON PARK

TITLE: EXISTING TRAFFIC COUNTS - 800M RADIUS

DRAWING NUMBER: KC01649.000_ S05

DRAWN BY: N.M.

Civil & Traffic Engineering Consultants
KCTT (Trading as KC Traffic and Transport Pty Ltd)
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au



LOCATION BOUNDARY

ROAD (VARIED WITH ROAD WIDTH)

Lewis Road ROAD NAME

1,389 Total Expected Traffic Generation from the proposed development

503 Total Expected Traffic Generation from Subject Site on the specific section of road - **IN and OUT direction**

Traffic Flow IN Direction

Traffic Flow OUT Direction

NOTE: THE PLAN IS COURTEOUSY OF SPH ARCHITECTURE + INTERIORS

LEGEND

No	DATE	AMENDMENT
A	30-10-2023	ISSUED FOR REVIEW

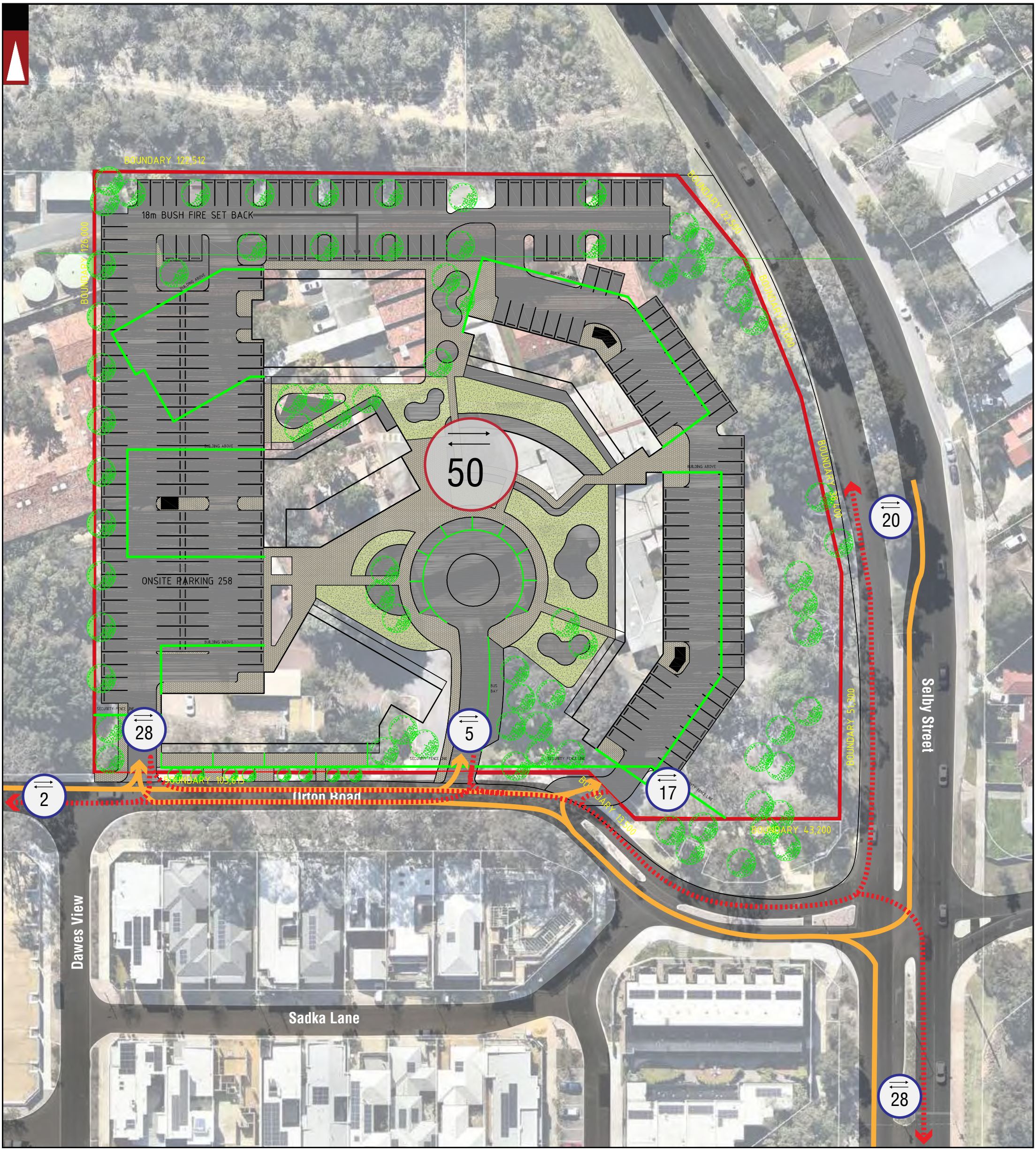
PROJECT: LOT 47 ORTON ROAD, SHENTON PARK

TITLE: TRAFFIC FLOW DIAGRAM

DRAWING NUMBER: KC01649.000_ S06

DRAWN BY: N.M.

Civil & Traffic Engineering Consultants
KCTT (Trading as KC Traffic and Transport Pty Ltd)
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au



LOCATION BOUNDARY

ROAD (VARIED WITH ROAD WIDTH)

Lewis Road ROAD NAME

1,389 — Total Expected Traffic Generation from the proposed development - AM

503 — Total Expected Traffic Generation from Subject Site on the specific section of road - **IN and OUT direction - AM**

Traffic Flow IN Direction

Traffic Flow OUT Direction

NOTE: THE PLAN IS COURTEOUSY OF SPH ARCHITECTURE + INTERIORS

LEGEND

No	DATE	AMENDMENT
A	30-10-2023	ISSUED FOR REVIEW

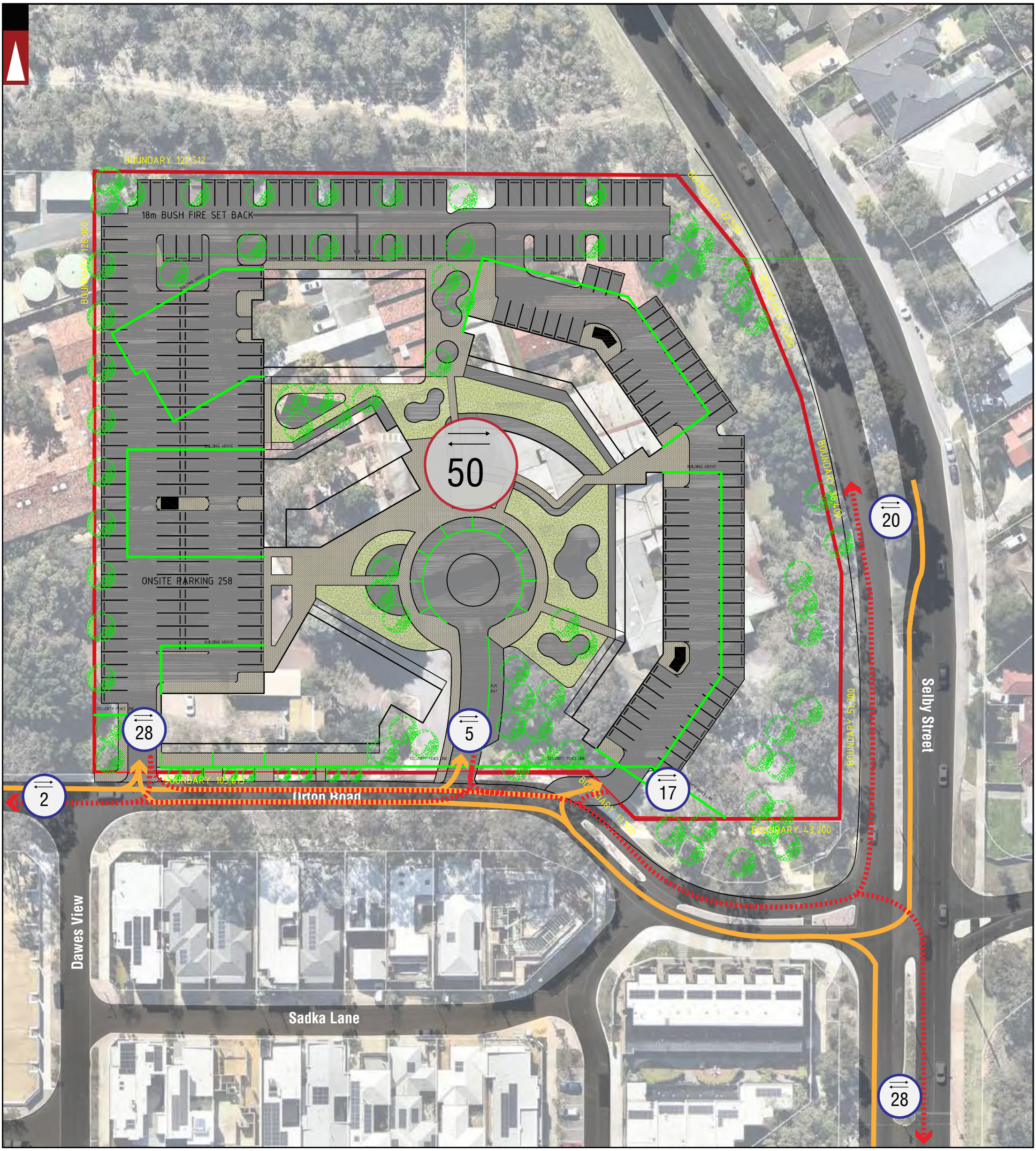
PROJECT: LOT 47 ORTON ROAD, SHENTON PARK

TITLE: TRAFFIC FLOW DIAGRAM

DRAWING NUMBER: KC01649.000_ S07

DRAWN BY: N.M.

Civil & Traffic Engineering Consultants
KCTT (Trading as KC Traffic and Transport Pty Ltd)
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au



LOCATION BOUNDARY

ROAD (VARIED WITH ROAD WIDTH)

Lewis Road ROAD NAME

1,389 Total Expected Traffic Generation from the proposed development - PM

503 Total Expected Traffic Generation from Subject Site on the specific section of road - **IN and OUT direction - PM**

Traffic Flow IN Direction

Traffic Flow OUT Direction

NOTE: THE PLAN IS COURTEOUSY OF SPH ARCHITECTURE + INTERIORS

LEGEND

No	DATE	AMENDMENT
A	30-10-2023	ISSUED FOR REVIEW

PROJECT: LOT 47 ORTON ROAD, SHENTON PARK

TITLE: TRAFFIC FLOW DIAGRAM

DRAWING NUMBER: KC01649.000_ S08

DRAWN BY: N.M.

Civil & Traffic Engineering Consultants
KCTT (Trading as KC Traffic and Transport Pty Ltd)
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au

Appendix 3

Vehicle Turning Circle Plan

Blind aisle extension of at least 1.0m to be added for these two bays.

BOUNDARY 122,512

BOUNDARY 126,000

18m BUSH FIRE SET BACK

BOUNDARY 22,500

BOUNDARY 31,000

BOUNDARY 38,400

BUILDING ABOVE

ONSITE PARKING 258

BUS BAY

SECURITY FENCE LINE

BOUNDARY 103,615

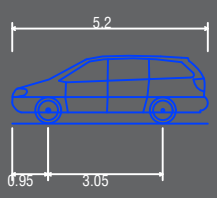
Orton Road

BOUNDARY 13,500

BOUNDARY 51,300

BOUNDARY 43,200

Kerb radius to be amended to suit the B99 passenger vehicle.



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

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

LEGEND

NO	DATE	AMENDMENT
A	30-10-2023	ISSUED FOR REVIEW

PROJECT:
Lot 47 Orton Road, Shenton Park

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

DRAWING NUMBER:
KC01649.000_S20

DRAWN BY:
N.M.

Civil & Traffic Engineering Consultants
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au

Blind aisle extension of at least 1.0m to be added for these two bays.

BOUNDARY 122,512

18m BUSH FIRE SET BACK

BOUNDARY 126,000

BOUNDARY 22,500

BOUNDARY 31,000

BOUNDARY 38,400

BUILDING ABOVE

ONSITE PARKING 258

BUS BAY

SECURITY FENCE LINE

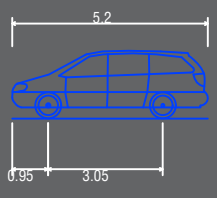
BOUNDARY 103,615

Orton Road

BOUNDARY 13,500

BOUNDARY 43,200

BOUNDARY 51,300



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

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

LEGEND

NO	DATE	AMENDMENT
A	30-10-2023	ISSUED FOR REVIEW

PROJECT:
Lot 47 Orton Road, Shenton Park

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

DRAWING NUMBER:
KC01649.000_S21

DRAWN BY:
N.M.

Civil & Traffic Engineering Consultants
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au
kctt

BOUNDARY 122,512

BOUNDARY 126,000

BOUNDARY 22,500

BOUNDARY 31,000

BOUNDARY 38,400

BOUNDARY 51,300

BOUNDARY 43,200

BOUNDARY 13,500

BOUNDARY 103,615

18m BUSH FIRE SET BACK

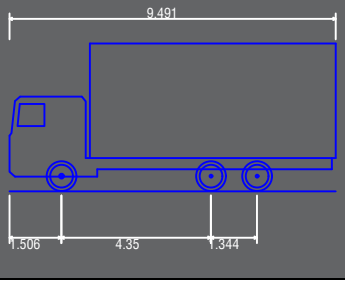
ONSITE PARKING 258

BUILDING ABOVE

BUS BAY

SECURITY FENCE LINE

Orton Road



IVECO Acco F2350G - Euro 4
Overall Length 9.491m
Overall Width 2.500m
Overall Body Height 4.300m
Min Body Ground Clearance 0.427m
Track Width 2.500m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 9.150m

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

LEGEND

NO	DATE	AMENDMENT
A	30-10-2023	ISSUED FOR REVIEW

PROJECT:
Lot 47 Orton Road, Shenton Park

TITLE:
Vehicle Turning Circle Plan - Waste Vehicle 9.491m

DRAWING NUMBER:
KC01649.000_S22

DRAWN BY:
N.M.

Civil & Traffic Engineering Consultants
PO Box 1456 Scarborough WA 6922
PH: 08 9441 2700
WEB: www.kctt.com.au

Appendix B – Arboricultural Tree Survey Report

Paperbark Technologies Pty Ltd
PO Box 1116
Scarborough WA 6922
Mob: 0401 817 551
zana@paperbarktechnologies.com.au
www.paperbarktechnologies.com.au
ISA Certified Arborists AU-0039A, AU-341A, AU-0351A
Quantified Tree Risk Assessor Lic-1082, 3442, 6146, 7265
Diploma of Horticulture/Arboriculture

Licensed User


Map 1 - Lot 47 Orton Road, Shenton Park
Common Name
Avocado Pear
Black Tea-Treee
Cape Lilac, White Cedar (2)
Chinese Banyan tree
Chinese Tallow (6)
Citrus (6)
Cocos Palm (8)
Cuban Royal Palm (4)
Cypress
Domestic Fig
Fiddle Leaf Fig
Firewood Banksia
Flowering / Pissard's Plum (4)
Hill's Fig
Jarrah (32)
kings park special (8)
Lemon
Lemon Scented Gum (7)
Lilly Pilly (3)
Loquat
Mango
Moonah
Moreton Bay Fig
Native Frangipani
Norfolk Island Hibiscus
NZ Christmas Tree (3)
Orange (2)
Queensland Box
River Red Gum (3)
Smooth Bark Apple Myrtle
Southern Mahogany
Swamp Mahogany
Tasmanian Blue Gum (3)
Umbrella Tree (2)
WA Weeping Peppermint (2)
Weeping Bottlebrush
10 m


Map 2 - Lot 47 Orton Road, Shenton Park
Common Name
Avocado Pear
Black Tea-Treee
Cape Lilac, White Cedar (2)
Chinese Banyan tree
Chinese Tallow (6)
Citrus (6)
Cocos Palm (8)
Cuban Royal Palm (4)
Cypress
Domestic Fig
Fiddle Leaf Fig
Firewood Banksia
Flowering / Pissard's Plum (4)
Hill's Fig
Jarrah (32)
kings park special (8)
Lemon
Lemon Scented Gum (7)
Lilly Pilly (3)
Loquat
Mango
Moonah
Moreton Bay Fig
Native Frangipani
Norfolk Island Hibiscus
NZ Christmas Tree (3)
Orange (2)
Queensland Box
River Red Gum (3)
Smooth Bark Apple Myrtle
Southern Mahogany
Swamp Mahogany
Tasmanian Blue Gum (3)
Umbrella Tree (2)
WA Weeping Peppermint (2)
Weeping Bottlebrush
10 m

Arboricultural Tree Survey Report - Lot 47 Orton Road, Shenton Park - Tree 1 - 50

November 8, 2023
Total Tree Count: 50

Brief

This consultant has been commissioned by Alinea to inspect and submit a report in respect of 115 trees located within the grounds of Lot 47 Orton Road, Shenton Park which is scheduled to undergo redevelopment works.

Recommendations were made based upon health and structural condition of the inspected trees as to whether or not they can be retained and to advise of any remedial pruning works.

The survey scope requires:

- Tagging each tree with a numerical tree tag from 1 - 115.
- The identification of tree species.
- Measurement of the height & canopy spread of the trees.
- Measurement of trunk diameters.
- Tree age.
- Current health and structural condition of the trees.
- Problems identified and itemised.
- Retention Value (Low, Medium, High).
- ULE (Useful Life Expectancy).
- Tree Protection Zone Radius (TPZ) calculation.
- Structural Root Zone Radius (SRZ) calculation.
- Works priority rating.
- Recommended remedial pruning or other works that may be required.

All trees are tagged using an aluminium tree tag and digitally mapped. This consultant confirms that the site inspections were carried out on the 7th of November 2023 with a total of 115 trees audited.

A works list and maps accompany this report.

Summary & Recommendations

The 115 trees inspected were found to be predominantly in good to fair health and fair structural condition at this time.

16 trees have been recommended for remedial works which consist predominantly of the removal of deadwood greater than 30mm in diameter held in the canopy and the application of Trace Elements like the growth stimulant 'Bioprime Trace' under the canopy dripline of twelve trees to stimulate new growth and thereby improve the trees' health and vitality.

Pruning of trees is to be limited to required works indicated within this report. No additional pruning is recommended to be undertaken without further arborist consultation and all approved pruning is to be carried out by a qualified Arborist in accordance with AS4373 – 2007 *Pruning of Amenity Trees*.

Five trees are not recommended for retention at this time due to being found dead or in very poor health and very poor structural condition, and they have been recommended for removal. Further tree removal is likely and dependent upon when the proposed plans for the site are released and confirmed.

The remaining trees are recommended for retention at this stage as intended usage patterns of the site have not, as yet, been determined. Some of these trees will be only suitable to be retained in their current condition or within areas where disturbance during the development process is limited or where target values will remain relatively low.

The TPZ and SRZ radius details for each tree provided in the report are based upon AS 4970-2009 *Protection of trees on development sites* and provide a guide to assist with the care and protection of trees to be retained.

No excavation works are permitted inside a trees TPZ radius unless approved by a qualified arborist. Arborist advice is recommended to be sought where roots greater than 30mm in diameter or a significant mass of smaller diameter roots are required to be cut and removed to complete the works. Roots above 30mm diameter are not to be cut without authorisation from a qualified Arborist.

Demolition of existing buildings and structures adjacent the trees need to be carried out by small machinery and away from the trees to ensure canopy and structural damage are avoided.

The removal of live canopy and major limbs may significantly damage the trees. Therefore, work methods and equipment must be suitable to the scale of works and operating space to ensure accidental canopy and structural damage are prevented.

It is also recommended that all trees are protected by temporary fencing to delineate tree protection areas consistent with AS4970-2009 (refer to below 'Appendix - Tree Protection Fencing') and that it is installed prior to works commencing. It is to

be an area of tree and root protection with no digging and no storage of equipment or tools. No filling, trenching or other earthworks shall be carried out unless there is written arborist approval. Soil is not to be lowered or raised within this zone and no washing of tools or cement/paint or chemicals is to be deposited in this zone.

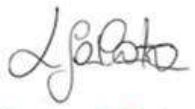
Where temporary fencing cannot be achieved due to the restricted amount of practicable space within the site during the development works, it is recommended to provide at least trunk/branch and ground protection to avoid mechanical injuries from small and large machinery.

Storage of tools and equipment and the storage of materials are recommended to be located within an open area, preferably not within 6m of trees to be retained.

The parking of vehicles shall be located within open areas a minimum of 3.0m from the base of all adjacent trees.

Supplementary watering to the retained trees is required to minimise stress on the trees associated with site disruption and root loss. It is generally recommended to water once per week with a minimum of 600 litres per tree, however this may vary. Water is to be applied in a manner that minimises runoff and it is recommended that the initial watering incorporates a wetting agent to assist water infiltration.

The future management, maintenance and condition of the trees have a considerable bearing on their location, with safety to property and persons the main priority. Therefore, each tree retained is recommended to be re-inspected annually to ensure that the trees remain healthy and in a structurally sound condition with a level of risk that is acceptable.



Luisa Galata
Diploma of Arboriculture, ISA Certified Arborists AU-0351A & Quantified Tree Risk Assessors n. 6146
Paperbark Technologies Pty Ltd
PO Box 1116
Scarborough WA 6922
Mob: 0401 817 551
zana@paperbarktechnologies.com.au
luisa@paperbarktechnologies.com.au
www.paperbarktechnologies.com.au

Limitation of liability

Trees can be managed, but they cannot be controlled. To live or work near a tree involves a degree of risk.

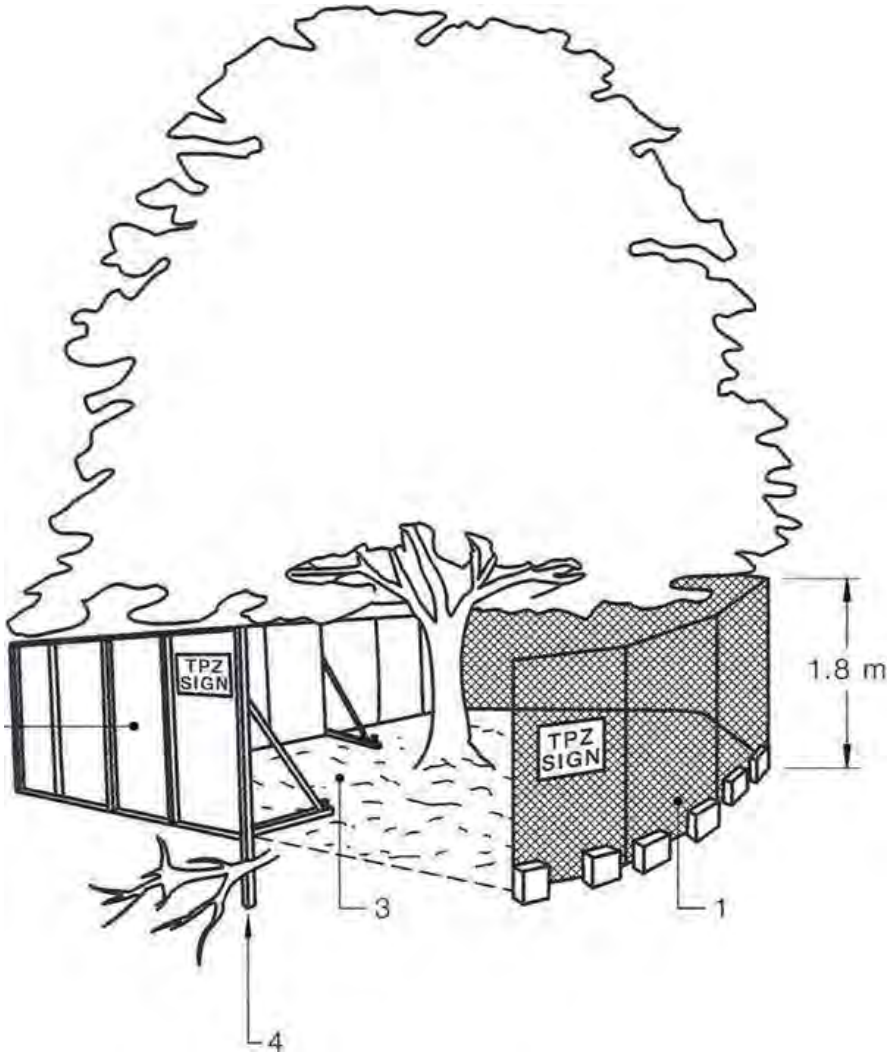
This report only covers identifiable defects present at the time of inspection. Paperbark Technologies accepts no responsibility and cannot be held liable for any structural defect or unforeseen event/situation or adverse weather conditions that may occur after the time of inspection. Paperbark Technologies cannot guarantee that the tree/s contained within this report will be structurally sound under all circumstances, and is not able to detect every condition that may possibly lead to the structural failure of a tree. Paperbark Technologies cannot guarantee that the recommendations made will categorically result in the tree being made safe.

Unless specifically mentioned this report will only be concerned with above ground inspections, as such all observations have been visually assessed from ground level. Trees are living organisms and as such cannot be classified as safe under any circumstances. Trees fail in ways that the arboriculture industry does not fully understand.

The recommendations are made on the basis of what can be reasonably identified at the time of inspection therefore Paperbark Technologies accepts no liability for any recommendations made. All care has been taken to obtain information from reliable sources, however Paperbark Technologies can neither guarantee nor be responsible for the accuracy of information provided by others. In the event that reinspection of the tree/s is recommended it is the client's responsibility to make arrangements with Paperbark Technologies.

Appendix - Tree Protection Fencing

(AS4970- 2009 *Protection of trees on development sites)*

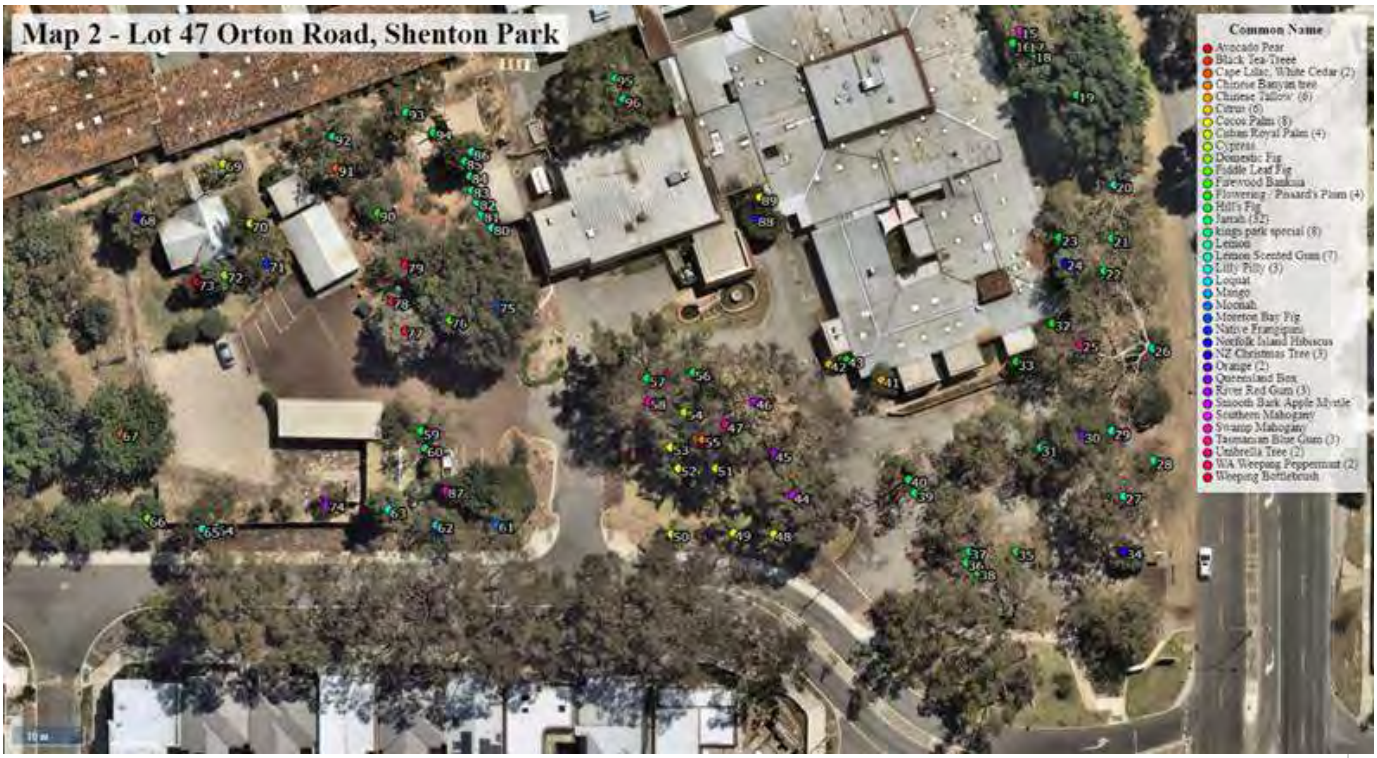


LEGEND:

1 Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
2 Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
3 Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
4 Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.


Overall Map of Trees - Lot 47 Orton Road, Shenton Park
Common Name
Avocado Pear
Black Tea-Tree
Cape Lilac, White Cedar (2)
Chinese Banyan tree
Chinese Tallow (6)
Citrus (6)
Cocos Palm (8)
Cuban Royal Palm (4)
Cypress
Domestic Fig
Fiddle Leaf Fig
Firewood Banksia
Flowering / Pissard's Plum (4)
Hill's Fig
Jarrah (32)
kings park special (8)
Lemon
Lemon Scented Gum (7)
Lilly Pilly (3)
Loquat
Mango
Moonah
Morton Bay Fig
Native Frangipani
Norfolk Island Hibiscus
NZ Christmas Tree (3)
Orange (2)
Queensland Box
River Red Gum (3)
Smooth Bark Apple Myrtle
Southern Mahogany
Swamp Mahogany
Tasmanian Blue Gum (3)
Umbrella Tree (2)
WA Weeping Peppermint (2)
Weeping Bottlebrush


Map 1 - Lot 47 Orton Road, Shenton Park
Common Name
Avocado Pear
Black Tea-Tree
Cape Lilac, White Cedar (2)
Chinese Banyan tree
Chinese Tallow (6)
Citrus (6)
Cocos Palm (8)
Cuban Royal Palm (4)
Cypress
Domestic Fig
Fiddle Leaf Fig
Firewood Banksia
Flowering / Pissard's Plum (4)
Hill's Fig
Jarrah (32)
kings park special (8)
Lemon
Lemon Scented Gum (7)
Lilly Pilly (3)
Loquat
Mango
Moonah
Morton Bay Fig
Native Frangipani
Norfolk Island Hibiscus
NZ Christmas Tree (3)
Orange (2)
Queensland Box
River Red Gum (3)
Smooth Bark Apple Myrtle
Southern Mahogany
Swamp Mahogany
Tasmanian Blue Gum (3)
Umbrella Tree (2)
WA Weeping Peppermint (2)
Weeping Bottlebrush



Jarrah Tree ID #1

29 State Route 64

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	16
Canopy Spread [m]:	15
DBH [cm]:	106.74
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Multi Crown leaders, Canopy thinning evident
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	12.81
Structural Root Zone (SRZ) [m]:	4.08
Useful Life Expectancy:	20-40 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #2

25 State Route 64

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	7.5
Canopy Spread [m]:	6
DBH [cm]:	55.38
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Multi Crown leaders, Canopy thinning evident
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	6.65
Structural Root Zone (SRZ) [m]:	3.42
Useful Life Expectancy:	20-40 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Umbrella Tree Tree ID #3

61 Selby Street

Tree Details	
Latin Name:	Schefflera actinophylla
Tree Height (Estimated) [m]:	11
Canopy Spread [m]:	7
DBH [cm]:	80
Health:	Good
Structure:	Fair
Problems:	Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	9.6
Structural Root Zone (SRZ) [m]:	3.11
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #4

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	17
Canopy Spread [m]:	12
DBH [cm]:	104.51
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Multi Crown leaders, Canopy thinning evident
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	12.54
Structural Root Zone (SRZ) [m]:	3.91
Useful Life Expectancy:	20-40 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #5

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	10
Canopy Spread [m]:	5
DBH [cm]:	44.38
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Suppressed canopy, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	5.33
Structural Root Zone (SRZ) [m]:	2.87
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #6

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	11.5
Canopy Spread [m]:	6.5
DBH [cm]:	41.74
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Suppressed canopy, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	5.01
Structural Root Zone (SRZ) [m]:	3.11
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #7

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	17
Canopy Spread [m]:	5
DBH [cm]:	46
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	5.52
Structural Root Zone (SRZ) [m]:	2.57
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #8

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	15
Canopy Spread [m]:	9
DBH [cm]:	52.2
Health:	Poor
Structure:	Fair
Problems:	Deadwood major >50, Epicormic growth, Canopy thinning evident, Chlorotic foliage
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients, Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	6.26
Structural Root Zone (SRZ) [m]:	2.98
Useful Life Expectancy:	6-10 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

kings park special Tree ID #9

61 Selby Street

Tree Details	
Latin Name:	Callistemon Kings Park Special
Tree Height (Estimated) [m]:	6
Canopy Spread [m]:	3.5
DBH [cm]:	21.93
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Wound-Previous failure, Included bark
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.63
Structural Root Zone (SRZ) [m]:	2.1
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

kings park special Tree ID #10

25 State Route 64

Tree Details	
Latin Name:	Callistemon Kings Park Special
Tree Height (Estimated) [m]:	6
Canopy Spread [m]:	3
DBH [cm]:	17
Health:	Good
Structure:	Fair
Problems:	Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.04
Structural Root Zone (SRZ) [m]:	1.82
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lemon Scented Gum Tree ID #11

61 Selby Street

Tree Details	
Latin Name:	Corymbia citriodora
Tree Height (Estimated) [m]:	15
Canopy Spread [m]:	7
DBH [cm]:	28
Health:	Poor
Structure:	Fair
Problems:	Epicormic growth, Suppressed canopy, Decayed pruning stub
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.36
Structural Root Zone (SRZ) [m]:	2.1
Useful Life Expectancy:	1-5 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #12

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	16
Canopy Spread [m]:	8
DBH [cm]:	70.33
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	8.44
Structural Root Zone (SRZ) [m]:	3.42
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #13

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	16
Canopy Spread [m]:	6
DBH [cm]:	57
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Phototropism
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	6.84
Structural Root Zone (SRZ) [m]:	2.78
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Black Tea-Tree Tree ID #14 61

Selby Street

Tree Details	
Latin Name:	Melaleuca bracteata
Tree Height (Estimated) [m]:	8
Canopy Spread [m]:	6
DBH [cm]:	45
Health:	Very Poor
Structure:	Poor
Problems:	Deadwood major >50, Leaning, Dieback, Decline
Notes:	
Priority:	High
Tree Work:	Remove Tree
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	5.4
Structural Root Zone (SRZ) [m]:	2.57
Useful Life Expectancy:	1-5 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

Southern Mahogany Tree ID #15

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus botryoides
Tree Height (Estimated) [m]:	15
Canopy Spread [m]:	5
DBH [cm]:	35
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	4.2
Structural Root Zone (SRZ) [m]:	2.39
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #16

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	15
Canopy Spread [m]:	10
DBH [cm]:	75
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Deadwood major >50, Epicormic growth, Included bark
Notes:	
Priority:	Moderate
Tree Work:	Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	9
Structural Root Zone (SRZ) [m]:	3.08
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #17

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	6
Canopy Spread [m]:	6
DBH [cm]:	46.87
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	5.62
Structural Root Zone (SRZ) [m]:	2.65
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #18

61 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	14
Canopy Spread [m]:	3
DBH [cm]:	35
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	4.2
Structural Root Zone (SRZ) [m]:	2.28
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Hill's Fig Tree ID #19

61 Selby Street

Tree Details	
Latin Name:	Ficus hillii
Tree Height (Estimated) [m]:	20
Canopy Spread [m]:	23
DBH [cm]:	109
Health:	Good
Structure:	Fair
Problems:	Included bark, Surface roots, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	13.08
Structural Root Zone (SRZ) [m]:	3.43
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lemon Scented Gum Tree ID #20

61 Selby Street

Tree Details	
Latin Name:	Corymbia citriodora
Tree Height (Estimated) [m]:	20
Canopy Spread [m]:	15
DBH [cm]:	53
Health:	Poor
Structure:	Fair
Problems:	Deadwood major >50, Decline, Canopy thinning evident
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients, Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	6.36
Structural Root Zone (SRZ) [m]:	2.81
Useful Life Expectancy:	1-5 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #21

2 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	14
Canopy Spread [m]:	14
DBH [cm]:	63.25
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Multi Crown leaders, Canopy thinning evident
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	7.59
Structural Root Zone (SRZ) [m]:	3.57
Useful Life Expectancy:	20-40 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #22

2 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	8
Canopy Spread [m]:	4
DBH [cm]:	21
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.52
Structural Root Zone (SRZ) [m]:	1.82
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #23

2 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	13
Canopy Spread [m]:	11
DBH [cm]:	51
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	6.12
Structural Root Zone (SRZ) [m]:	2.74
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Norfolk Island Hibiscus Tree ID #24

2 Selby Street

Tree Details	
Latin Name:	Lagunaria patersonii
Tree Height (Estimated) [m]:	17
Canopy Spread [m]:	6
DBH [cm]:	45
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	5.4
Structural Root Zone (SRZ) [m]:	2.61
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Tasmanian Blue Gum Tree ID #25

2 Selby Street

Tree Details	
Latin Name:	Eucalyptus globulus
Tree Height (Estimated) [m]:	15
Canopy Spread [m]:	6
DBH [cm]:	71
Health:	Poor
Structure:	Poor
Problems:	Codominant Stem, Deadwood major >50, Epicormic growth, Leaning, Decline
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients, Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	8.52
Structural Root Zone (SRZ) [m]:	3.06
Useful Life Expectancy:	6-10 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lemon Scented Gum Tree ID #26

2 Selby Street

Tree Details	
Latin Name:	Corymbia citriodora
Tree Height (Estimated) [m]:	28
Canopy Spread [m]:	25
DBH [cm]:	91
Health:	Poor
Structure:	Fair
Problems:	Deadwood major >50, Epicormic growth, Decline, Canopy thinning evident
Notes:	
Priority:	High
Tree Work:	Add nutrients, Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	10.92
Structural Root Zone (SRZ) [m]:	3.34
Useful Life Expectancy:	1-5 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lemon Scented Gum Tree ID #27

2 Selby Street

Tree Details	
Latin Name:	Corymbia citriodora
Tree Height (Estimated) [m]:	25
Canopy Spread [m]:	16
DBH [cm]:	69
Health:	Good
Structure:	Fair
Problems:	Deadwood major >50
Notes:	
Priority:	Moderate
Tree Work:	Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	8.28
Structural Root Zone (SRZ) [m]:	3.18
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

kings park special Tree ID #28

2 Selby Street

Tree Details

Latin Name:	Callistemon Kings Park Special
Tree Height (Estimated) [m]:	4.5
Canopy Spread [m]:	3
DBH [cm]:	16
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Leaning
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	2
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lemon Scented Gum Tree ID #29

2 Selby Street

Tree Details	
Latin Name:	Corymbia citriodora
Tree Height (Estimated) [m]:	15
Canopy Spread [m]:	7
DBH [cm]:	37
Health:	Fair
Structure:	Fair
Problems:	Basal decay, Deadwood minor <50, Epicormic growth, Leaning, Suppressed canopy, Bark wound
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	4.44
Structural Root Zone (SRZ) [m]:	2.55
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Queensland Box Tree ID #30

2 Selby Street

Tree Details	
Latin Name:	Lophostemon confertus
Tree Height (Estimated) [m]:	16
Canopy Spread [m]:	7.5
DBH [cm]:	66
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Included bark, Bark wound
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	7.92
Structural Root Zone (SRZ) [m]:	3.06
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #31

2 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	13
Canopy Spread [m]:	9
DBH [cm]:	62.68
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Multi Crown leaders, Canopy thinning evident
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	7.52
Structural Root Zone (SRZ) [m]:	3.51
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Flowering / Pissard's Plum Tree ID #32

2 Selby Street

Tree Details	
Latin Name:	Prunus cerasifera nigra
Tree Height (Estimated) [m]:	4
Canopy Spread [m]:	2.5
DBH [cm]:	15
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.57
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Flowering / Pissard's Plum Tree ID #33

2 Selby Street

Tree Details	
Latin Name:	Prunus cerasifera nigra
Tree Height (Estimated) [m]:	2.5
Canopy Spread [m]:	2.5
DBH [cm]:	18
Health:	Good
Structure:	Poor
Problems:	Lopped, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.16
Structural Root Zone (SRZ) [m]:	1.68
Useful Life Expectancy:	20-40 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

NZ Christmas Tree Tree ID #34

2 Selby Street

Tree Details	
Latin Name:	Metrosideros excelsa
Tree Height (Estimated) [m]:	4
Canopy Spread [m]:	4.5
DBH [cm]:	31
Health:	Good
Structure:	Fair
Problems:	Epicormic growth, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.72
Structural Root Zone (SRZ) [m]:	2.28
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #35

2 Selby Street

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	8.5
Canopy Spread [m]:	6
DBH [cm]:	24
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Phototropism
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.88
Structural Root Zone (SRZ) [m]:	1.97
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #36

20 Sadka Lane

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	5
Canopy Spread [m]:	1
DBH [cm]:	12
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.49
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #37

2 Orton Road

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	15
Canopy Spread [m]:	6
DBH [cm]:	46.07
Health:	Poor
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Decline, Canopy thinning evident
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	5.53
Structural Root Zone (SRZ) [m]:	2.63
Useful Life Expectancy:	6-10 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #38

20 Sadka Lane

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	14
Canopy Spread [m]:	10
DBH [cm]:	69.33
Health:	Fair
Structure:	Fair
Problems:	Deadwood major >50, Epicormic growth, Multi Crown leaders, Canopy thinning evident
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients, Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	8.32
Structural Root Zone (SRZ) [m]:	3.06
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #39

2 Orton Road

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	8
Canopy Spread [m]:	3
DBH [cm]:	25
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Canopy thinning evident
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3
Structural Root Zone (SRZ) [m]:	1.97
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #40

2 Orton Road

Tree Details	
Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	16
Canopy Spread [m]:	9.5
DBH [cm]:	57.01
Health:	Poor
Structure:	Fair
Problems:	Deadwood major >50, Epicormic growth, Basal bifurcation, Previous limb failure, Decline, Canopy thinning evident
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients, Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	6.84
Structural Root Zone (SRZ) [m]:	2.92
Useful Life Expectancy:	6-10 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Chinese Tallow Tree ID #41

2 Orton Road

Tree Details	
Latin Name:	Triadica sebifera
Tree Height (Estimated) [m]:	7
Canopy Spread [m]:	3
DBH [cm]:	20
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.4
Structural Root Zone (SRZ) [m]:	1.94
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Chinese Tallow Tree ID #42

10C Selby Street

Tree Details	
Latin Name:	Triadica sebifera
Tree Height (Estimated) [m]:	5
Canopy Spread [m]:	1.5
DBH [cm]:	10
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.45
Useful Life Expectancy:	20-40 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Flowering / Pissard's Plum Tree ID #43

10C Selby Street

Tree Details	
Latin Name:	Prunus cerasifera nigra
Tree Height (Estimated) [m]:	4
Canopy Spread [m]:	2
DBH [cm]:	8
Health:	Good
Structure:	Fair
Problems:	Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.31
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Smooth Bark Apple Myrtle Tree ID #44

2 Orton Road

Tree Details	
Latin Name:	Angophora costata
Tree Height (Estimated) [m]:	15.5
Canopy Spread [m]:	12
DBH [cm]:	67
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	8.04
Structural Root Zone (SRZ) [m]:	2.92
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

River Red Gum Tree ID #45

2 Orton Road

Tree Details	
Latin Name:	Eucalyptus camaldulensis var.camaldulensis
Tree Height (Estimated) [m]:	17
Canopy Spread [m]:	15
DBH [cm]:	71
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Previous limb failure
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	8.52
Structural Root Zone (SRZ) [m]:	3.18
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

River Red Gum Tree ID #46

10C Selby Street

Tree Details	
Latin Name:	Eucalyptus camaldulensis var.camaldulensis
Tree Height (Estimated) [m]:	20
Canopy Spread [m]:	18
DBH [cm]:	78
Health:	Good
Structure:	Fair
Problems:	Deadwood major >50, Epicormic growth
Notes:	
Priority:	Moderate
Tree Work:	Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	9.36
Structural Root Zone (SRZ) [m]:	3.22
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Tasmanian Blue Gum Tree ID #47

10C Selby Street

Tree Details	
Latin Name:	Eucalyptus globulus
Tree Height (Estimated) [m]:	17
Canopy Spread [m]:	6
DBH [cm]:	65
Health:	Poor
Structure:	Fair
Problems:	Deadwood major >50, Decay, Epicormic growth
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients, Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	7.8
Structural Root Zone (SRZ) [m]:	2.9
Useful Life Expectancy:	1-5 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cocos Palm Tree ID #48

2 Orton Road

Tree Details	
Latin Name:	Syagrus romanzoffiana
Tree Height (Estimated) [m]:	13
Canopy Spread [m]:	4
DBH [cm]:	25
Health:	Good
Structure:	Good
Problems:	Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3
Structural Root Zone (SRZ) [m]:	2.23
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cocos Palm Tree ID #49

2 Orton Road

Tree Details	
Latin Name:	Syagrus romanzoffiana
Tree Height (Estimated) [m]:	18
Canopy Spread [m]:	4
DBH [cm]:	31
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.72
Structural Root Zone (SRZ) [m]:	2.53
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cocos Palm Tree ID #50

2 Orton Road

Tree Details	
Latin Name:	Syagrus romanzoffiana
Tree Height (Estimated) [m]:	11
Canopy Spread [m]:	4
DBH [cm]:	23
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.76
Structural Root Zone (SRZ) [m]:	2
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Arboricultural Tree Survey Report - Lot 47 Orton Road, Shenton Park - Tree 51 - 100

November 8, 2023 |
Total Tree Count: 50

Cocos Palm Tree ID #51

2 Orton Road

Tree Details

Latin Name:	Syagrus romanzoffiana
Tree Height (Estimated) [m]:	13
Canopy Spread [m]:	4
DBH [cm]:	27
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.24
Structural Root Zone (SRZ) [m]:	2.43
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cocos Palm Tree ID #52

2 Orton Road

Tree Details

Latin Name:	Syagrus romanzoffiana
Tree Height (Estimated) [m]:	11
Canopy Spread [m]:	2
DBH [cm]:	19
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.28
Structural Root Zone (SRZ) [m]:	2.18
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cocos Palm Tree ID #53

2 Orton Road

Tree Details

Latin Name:	Syagrus romanzoffiana
Tree Height (Estimated) [m]:	11
Canopy Spread [m]:	3
DBH [cm]:	31
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.72
Structural Root Zone (SRZ) [m]:	2.25
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cuban Royal Palm Tree ID #54

10C Selby Street

Tree Details

Latin Name:	Roystonia regia
Tree Height (Estimated) [m]:	10
Canopy Spread [m]:	4
DBH [cm]:	21
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.52
Structural Root Zone (SRZ) [m]:	2
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Chinese Banyan tree Tree ID #55

10C Selby Street

Tree Details

Latin Name:	Ficus microcarpa
Tree Height (Estimated) [m]:	10
Canopy Spread [m]:	15
DBH [cm]:	55
Health:	Good
Structure:	Fair
Problems:	Included bark, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	6.6
Structural Root Zone (SRZ) [m]:	2.61
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #56

10C Selby Street

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	16.5
Canopy Spread [m]:	8
DBH [cm]:	51
Health:	Fair
Structure:	Fair
Problems:	Basal decay, Deadwood minor <50, Epicormic growth, Bark wound
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	6.12
Structural Root Zone (SRZ) [m]:	2.73
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #57

10C Selby Street

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	21
Canopy Spread [m]:	15
DBH [cm]:	89.11
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	10.69
Structural Root Zone (SRZ) [m]:	3.24
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Tasmanian Blue Gum Tree ID #58

10C Selby Street

Tree Details

Latin Name:	Eucalyptus globulus
Tree Height (Estimated) [m]:	18
Canopy Spread [m]:	12
DBH [cm]:	80
Health:	Fair
Structure:	Fair
Problems:	Deadwood major >50, Epicormic growth
Notes:	
Priority:	Moderate
Tree Work:	Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	9.6
Structural Root Zone (SRZ) [m]:	3.3
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #59

10C Selby Street

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	6.5
Canopy Spread [m]:	4
DBH [cm]:	32
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Phototropism
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.84
Structural Root Zone (SRZ) [m]:	2.37
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #60

11 Sadka Lane

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	11
Canopy Spread [m]:	8
DBH [cm]:	90.21
Health:	Poor
Structure:	Fair
Problems:	Deadwood major >50, Epicormic growth, Basal bifurcation, Canopy thinning evident, Chlorotic foliage
Notes:	
Priority:	High
Tree Work:	Add nutrients, Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	10.83
Structural Root Zone (SRZ) [m]:	3.62
Useful Life Expectancy:	6-10 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Moonah Tree ID #61

11 Sadka Lane

Tree Details

Latin Name:	Melaleuca lanceolata
Tree Height (Estimated) [m]:	6
Canopy Spread [m]:	4
DBH [cm]:	27
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Canopy thinning evident
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.24
Structural Root Zone (SRZ) [m]:	2.1
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Loquat Tree ID #62

11 Sadka Lane

Tree Details

Latin Name:	Eriobotrya japonica
Tree Height (Estimated) [m]:	7
Canopy Spread [m]:	5.5
DBH [cm]:	30
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.6
Structural Root Zone (SRZ) [m]:	2.05
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lilly Pilly Tree ID #63

9 Sadka Lane

Tree Details

Latin Name:	Syzygium paniculatum
Tree Height (Estimated) [m]:	12
Canopy Spread [m]:	5
DBH [cm]:	27
Health:	Good
Structure:	Good
Problems:	Insect Infestation
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.24
Structural Root Zone (SRZ) [m]:	2.18
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lemon Scented Gum Tree ID #64

1 Sadka Lane

Tree Details

Latin Name:	Corymbia citriodora
Tree Height (Estimated) [m]:	18
Canopy Spread [m]:	8
DBH [cm]:	32
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Included bark, Crossing Branches
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.84
Structural Root Zone (SRZ) [m]:	2.28
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lemon Scented Gum Tree ID #65

1 Sadka Lane

Tree Details

Latin Name:	Corymbia citriodora
Tree Height (Estimated) [m]:	11
Canopy Spread [m]:	4
DBH [cm]:	15
Health:	Good
Structure:	Fair
Problems:	Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.68
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Domestic Fig Tree ID #66

1 Sadka Lane

Tree Details

Latin Name:	Ficus carica
Tree Height (Estimated) [m]:	4.5
Canopy Spread [m]:	4
DBH [cm]:	25
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	No tree tag due to access
Tree Protection Zone (TPZ) [m]:	3
Structural Root Zone (SRZ) [m]:	2.13
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cape Lilac, White Cedar Tree ID #67

2 Orton Road

Tree Details

Latin Name:	Melia azedarach
Tree Height (Estimated) [m]:	16
Canopy Spread [m]:	14
DBH [cm]:	48
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	No tree tag due to access
Tree Protection Zone (TPZ) [m]:	5.76
Structural Root Zone (SRZ) [m]:	2.61
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

NZ Christmas Tree Tree ID #68

2 Orton Road

Tree Details

Latin Name:	Metrosideros excelsa
Tree Height (Estimated) [m]:	9.5
Canopy Spread [m]:	8.5
DBH [cm]:	145
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	15
Structural Root Zone (SRZ) [m]:	3.89
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cuban Royal Palm Tree ID #69

2 Orton Road

Tree Details

Latin Name:	Roystonia regia
Tree Height (Estimated) [m]:	16
Canopy Spread [m]:	3
DBH [cm]:	27
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.24
Structural Root Zone (SRZ) [m]:	2.39
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cocos Palm Tree ID #70

2 Orton Road

Tree Details

Latin Name:	Syagrus romanzoffiana
Tree Height (Estimated) [m]:	12
Canopy Spread [m]:	4.5
DBH [cm]:	32
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.84
Structural Root Zone (SRZ) [m]:	2.53
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Native Frangipani Tree ID #71

2 Orton Road

Tree Details

Latin Name:	Hymenosporum flavum
Tree Height (Estimated) [m]:	10
Canopy Spread [m]:	6
DBH [cm]:	32
Health:	Poor
Structure:	Fair
Problems:	Codominant Stem, Deadwood major >50, Dieback, Decline
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients, Remove major deadwood
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.84
Structural Root Zone (SRZ) [m]:	2.3
Useful Life Expectancy:	6-10 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cypress Tree ID #72

2 Orton Road

Tree Details

Latin Name:	Cupressus species
Tree Height (Estimated) [m]:	8
Canopy Spread [m]:	5
DBH [cm]:	42
Health:	Fair
Structure:	Poor
Problems:	Lopped, Deadwood minor <50, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	5.04
Structural Root Zone (SRZ) [m]:	2.53
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

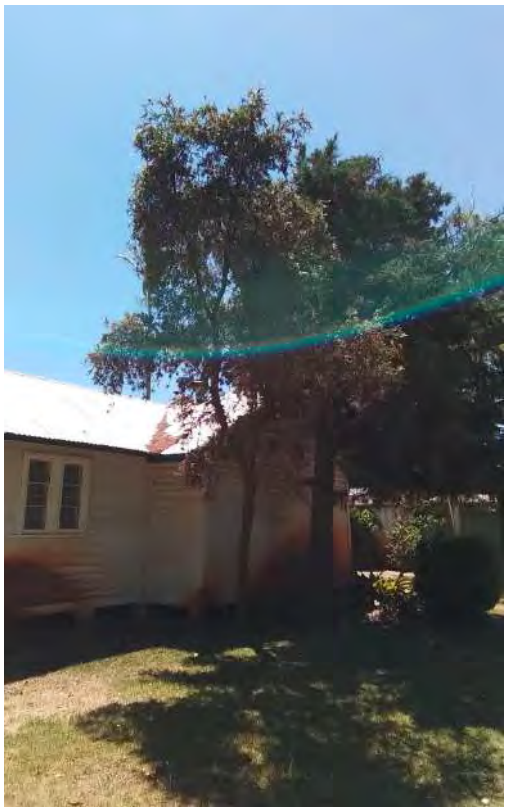
Weeping Bottlebrush Tree ID #73

2 Orton Road

Tree Details

Latin Name:	Callistemon viminalis
Tree Height (Estimated) [m]:	6.5
Canopy Spread [m]:	4.5
DBH [cm]:	19
Health:	Good
Structure:	Fair
Problems:	Leaning
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.28
Structural Root Zone (SRZ) [m]:	1.75
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View



River Red Gum Tree ID #74

9 Sadka Lane

Tree Details

Latin Name:	Eucalyptus camaldulensis var.camaldulensis
Tree Height (Estimated) [m]:	6.5
Canopy Spread [m]:	4.5
DBH [cm]:	18
Health:	Good
Structure:	Fair
Problems:	Codominant Stem
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.16
Structural Root Zone (SRZ) [m]:	1.68
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Moreton Bay Fig Tree ID #75

10C Selby Street

Tree Details

Latin Name:	Ficus macrophylla
Tree Height (Estimated) [m]:	13
Canopy Spread [m]:	14
DBH [cm]:	81.68
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Included bark, Surface roots, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	9.8
Structural Root Zone (SRZ) [m]:	3.28
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Fiddle Leaf Fig Tree ID #76

10C Selby Street

Tree Details

Latin Name:	Ficus lyrata
Tree Height (Estimated) [m]:	10
Canopy Spread [m]:	8
DBH [cm]:	35.47
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Deadwood minor <50, Surface roots, Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	4.26
Structural Root Zone (SRZ) [m]:	2.3
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

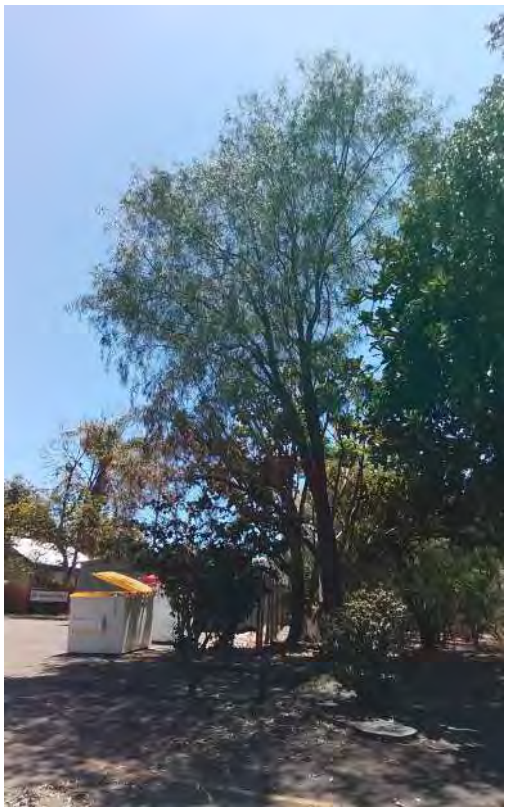
WA Weeping Peppermint Tree ID #77

10C Selby Street

Tree Details

Latin Name:	Agonis flexuosa
Tree Height (Estimated) [m]:	12
Canopy Spread [m]:	8
DBH [cm]:	37
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Deadwood minor <50, Included bark
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	4.44
Structural Root Zone (SRZ) [m]:	2.63
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View



Umbrella Tree Tree ID #78

10C Selby Street

Tree Details

Latin Name:	Schefflera actinophylla
Tree Height (Estimated) [m]:	9
Canopy Spread [m]:	6
DBH [cm]:	55
Health:	Good
Structure:	Fair
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	6.6
Structural Root Zone (SRZ) [m]:	2.69
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

WA Weeping Peppermint Tree ID #79

10C Selby Street

Tree Details

Latin Name:	Agonis flexuosa
Tree Height (Estimated) [m]:	7
Canopy Spread [m]:	8
DBH [cm]:	29.21
Health:	Good
Structure:	Fair
Problems:	Included bark, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.51
Structural Root Zone (SRZ) [m]:	2.28
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lilly Pilly Tree ID #80

10C Selby Street

Tree Details

Latin Name:	Syzygium paniculatum
Tree Height (Estimated) [m]:	7
Canopy Spread [m]:	3.5
DBH [cm]:	12
Health:	Good
Structure:	Good
Problems:	Codominant Stem, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.49
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

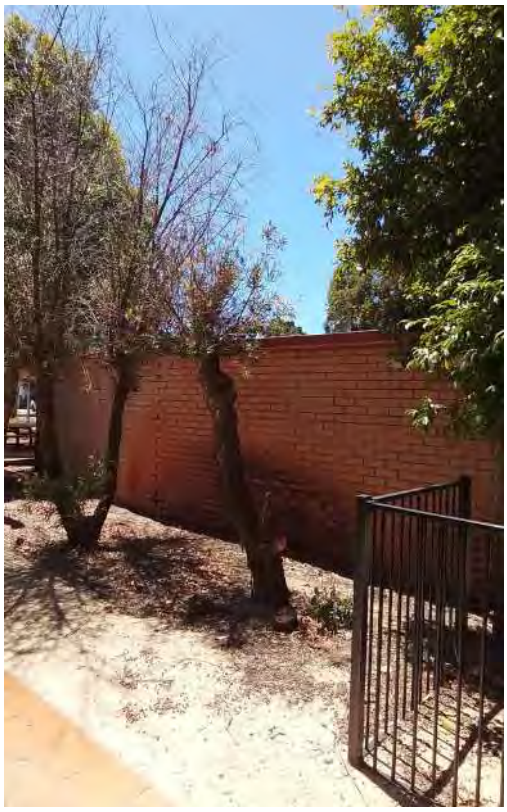
kings park special Tree ID #81

10C Selby Street

Tree Details

Latin Name:	Callistemon Kings Park Special
Tree Height (Estimated) [m]:	3
Canopy Spread [m]:	1
DBH [cm]:	22
Health:	Very Poor
Structure:	Very poor
Problems:	Lopped, Epicormic growth, Decline
Notes:	
Priority:	Moderate
Tree Work:	Remove Tree
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.64
Structural Root Zone (SRZ) [m]:	1.88
Useful Life Expectancy:	0 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View



kings park special Tree ID #82

10C Selby Street

Tree Details

Latin Name:	Callistemon Kings Park Special
Tree Height (Estimated) [m]:	4.5
Canopy Spread [m]:	3.5
DBH [cm]:	25
Health:	Very Poor
Structure:	Very poor
Problems:	Lopped, Epicormic growth, Decline
Notes:	
Priority:	Moderate
Tree Work:	Remove Tree
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3
Structural Root Zone (SRZ) [m]:	2.02
Useful Life Expectancy:	0 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

kings park special Tree ID #83

10C Selby Street

Tree Details

Latin Name:	Callistemon Kings Park Special
Tree Height (Estimated) [m]:	2
Canopy Spread [m]:	15
DBH [cm]:	40
Health:	Very Poor
Structure:	Very poor
Problems:	Lopped, Epicormic growth, Decline
Notes:	
Priority:	Moderate
Tree Work:	Remove Tree
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	4.8
Structural Root Zone (SRZ) [m]:	2.43
Useful Life Expectancy:	0 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

kings park special Tree ID #84

10C Selby Street

Tree Details

Latin Name:	Callistemon Kings Park Special
Tree Height (Estimated) [m]:	3
Canopy Spread [m]:	3
DBH [cm]:	26.27
Health:	Fair
Structure:	Poor
Problems:	Lopped, Epicormic growth, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.15
Structural Root Zone (SRZ) [m]:	2.28
Useful Life Expectancy:	6-10 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

kings park special Tree ID #85

10C Selby Street

Tree Details

Latin Name:	Callistemon Kings Park Special
Tree Height (Estimated) [m]:	4
Canopy Spread [m]:	4
DBH [cm]:	17.69
Health:	Good
Structure:	Fair
Problems:	Epicormic growth, Suppressed canopy
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.12
Structural Root Zone (SRZ) [m]:	1.85
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lilly Pilly Tree ID #86

10C Selby Street

Tree Details

Latin Name:	Syzygium paniculatum
Tree Height (Estimated) [m]:	8
Canopy Spread [m]:	6.5
DBH [cm]:	28
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.36
Structural Root Zone (SRZ) [m]:	2.13
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Swamp Mahogany Tree ID #87

11 Sadka Lane

Tree Details

Latin Name:	Eucalyptus robusta
Tree Height (Estimated) [m]:	6
Canopy Spread [m]:	3.5
DBH [cm]:	16
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Included bark
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.72
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

NZ Christmas Tree Tree ID #88

10C Selby Street

Tree Details

Latin Name:	Metrosideros excelsa
Tree Height (Estimated) [m]:	5
Canopy Spread [m]:	6.5
DBH [cm]:	80
Health:	Good
Structure:	Fair
Problems:	Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	9.6
Structural Root Zone (SRZ) [m]:	3.27
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cocos Palm Tree ID #89

10C Selby Street

Tree Details

Latin Name:	Syagrus romanzoffiana
Tree Height (Estimated) [m]:	7.5
Canopy Spread [m]:	4
DBH [cm]:	18
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.16
Structural Root Zone (SRZ) [m]:	1.97
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Firewood Banksia Tree ID #90

2 Orton Road

Tree Details

Latin Name:	Banksia menziesii
Tree Height (Estimated) [m]:	6.5
Canopy Spread [m]:	4.5
DBH [cm]:	26
Health:	Good
Structure:	Fair
Problems:	Codominant Stem
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	3.12
Structural Root Zone (SRZ) [m]:	1.97
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cape Lilac, White Cedar Tree ID #91

2 Orton Road

Tree Details

Latin Name:	Melia azedarach
Tree Height (Estimated) [m]:	11
Canopy Spread [m]:	5
DBH [cm]:	18
Health:	Fair
Structure:	Fair
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.16
Structural Root Zone (SRZ) [m]:	1.75
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #92

2 Orton Road

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	14
Canopy Spread [m]:	11
DBH [cm]:	67
Health:	Fair
Structure:	Fair
Problems:	Codominant Stem, Deadwood minor <50, Epicormic growth, Canopy thinning evident
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	8.04
Structural Root Zone (SRZ) [m]:	2.93
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #93

2 Orton Road

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	15
Canopy Spread [m]:	9
DBH [cm]:	64
Health:	Fair
Structure:	Fair
Problems:	Codominant Stem, Deadwood minor <50, Epicormic growth, Included bark, Previous limb failure, Compression Fork, Canopy thinning evident
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	7.68
Structural Root Zone (SRZ) [m]:	2.78
Useful Life Expectancy:	20-40 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #94

2 Orton Road

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	8
Canopy Spread [m]:	2
DBH [cm]:	60
Health:	Dead
Structure:	Fair
Problems:	Basal decay, Borer
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	7.2
Structural Root Zone (SRZ) [m]:	3.11
Useful Life Expectancy:	0 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #95

10C Selby Street

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	16
Canopy Spread [m]:	13
DBH [cm]:	109.66
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Deadwood minor <50, Epicormic growth, Basal bifurcation, Included bark, Compression Fork, Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	13.16
Structural Root Zone (SRZ) [m]:	3.87
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #96

10C Selby Street

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	16
Canopy Spread [m]:	13
DBH [cm]:	71.84
Health:	Good
Structure:	Fair
Problems:	Basal bifurcation, Leaning, Suppressed canopy, Phototropism
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	8.62
Structural Root Zone (SRZ) [m]:	3.48
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Avocado Pear Tree ID #97

2 Orton Road

Tree Details

Latin Name:	Persea gratissima
Tree Height (Estimated) [m]:	8.5
Canopy Spread [m]:	8.5
DBH [cm]:	38.95
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Deadwood minor <50, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	4.67
Structural Root Zone (SRZ) [m]:	2.51
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Jarrah Tree ID #98

2 Orton Road

Tree Details

Latin Name:	Eucalyptus marginata
Tree Height (Estimated) [m]:	17
Canopy Spread [m]:	14
DBH [cm]:	98.81
Health:	Good
Structure:	Fair
Problems:	Codominant Stem, Deadwood minor <50, Basal bifurcation, Included bark, Compression Fork, Bird browsing, Canopy thinning evident
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	11.86
Structural Root Zone (SRZ) [m]:	3.42
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Chinese Tallow Tree ID #99

2 Orton Road

Tree Details

Latin Name:	Triadica sebifera
Tree Height (Estimated) [m]:	7
Canopy Spread [m]:	5
DBH [cm]:	15
Health:	Good
Structure:	Good
Problems:	Deadwood minor <50
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.82
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Chinese Tallow Tree ID #100

2 Orton Road

Tree Details

Latin Name:	Triadica sebifera
Tree Height (Estimated) [m]:	5.5
Canopy Spread [m]:	2.5
DBH [cm]:	15
Health:	Poor
Structure:	Fair
Problems:	Codominant Stem, Deadwood minor <50, Dieback, Decline
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.79
Useful Life Expectancy:	6-10 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Arboricultural Tree Survey Report - Lot 47 Orton Road, Shenton Park - Tree 101 - 115

November 8, 2023 |
Total Tree Count: 15

Chinese Tallow Tree ID #101

2 Orton Road

Tree Details

Latin Name:	Triadica sebifera
Tree Height (Estimated) [m]:	4.5
Canopy Spread [m]:	2.5
DBH [cm]:	18
Health:	Poor
Structure:	Fair
Problems:	Vine growth, Deadwood minor <50, Dieback, Decline
Notes:	
Priority:	Moderate
Tree Work:	Add nutrients
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.16
Structural Root Zone (SRZ) [m]:	1.75
Useful Life Expectancy:	6-10 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Chinese Tallow Tree ID #102

2 Orton Road

Tree Details

Latin Name:	Triadica sebifera
Tree Height (Estimated) [m]:	4.5
Canopy Spread [m]:	2.5
DBH [cm]:	22
Health:	Dead
Structure:	Poor
Problems:	
Notes:	
Priority:	Moderate
Tree Work:	Remove Tree
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.64
Structural Root Zone (SRZ) [m]:	1.85
Useful Life Expectancy:	0 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

Flowering / Pissard's Plum Tree ID #103

2 Orton Road

Tree Details

Latin Name:	Prunus cerasifera nigra
Tree Height (Estimated) [m]:	3.5
Canopy Spread [m]:	2.5
DBH [cm]:	12
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Suckers
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.45
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cuban Royal Palm Tree ID #104

2 Orton Road

Tree Details

Latin Name:	Roystonia regia
Tree Height (Estimated) [m]:	8
Canopy Spread [m]:	3.5
DBH [cm]:	24.08
Health:	Good
Structure:	Fair
Problems:	Basal bifurcation
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.89
Structural Root Zone (SRZ) [m]:	2.39
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Cuban Royal Palm Tree ID #105

2 Orton Road

Tree Details

Latin Name:	Roystonia regia
Tree Height (Estimated) [m]:	7
Canopy Spread [m]:	3.5
DBH [cm]:	18
Health:	Good
Structure:	Good
Problems:	
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.16
Structural Root Zone (SRZ) [m]:	1.94
Useful Life Expectancy:	40+ years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Mango Tree ID #106

2 Orton Road

Tree Details

Latin Name:	Mangifera indica
Tree Height (Estimated) [m]:	4.5
Canopy Spread [m]:	5
DBH [cm]:	44
Health:	Good
Structure:	Fair
Problems:	Multi Crown leaders
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	5.28
Structural Root Zone (SRZ) [m]:	2.34
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Lemon Tree ID #107

2 Orton Road

Tree Details

Latin Name:	Citrus lemon
Tree Height (Estimated) [m]:	3
Canopy Spread [m]:	2
DBH [cm]:	13
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.49
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Orange Tree ID #108

2 Orton Road

Tree Details

Latin Name:	Citrus orange
Tree Height (Estimated) [m]:	3.5
Canopy Spread [m]:	2.5
DBH [cm]:	17
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.04
Structural Root Zone (SRZ) [m]:	1.61
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Citrus Tree ID #109

2 Orton Road

Tree Details

Latin Name:	Citrus species
Tree Height (Estimated) [m]:	3.5
Canopy Spread [m]:	1.5
DBH [cm]:	10
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.36
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Orange Tree ID #110

2 Orton Road

Tree Details

Latin Name:	Citrus orange
Tree Height (Estimated) [m]:	3.5
Canopy Spread [m]:	3
DBH [cm]:	20
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.4
Structural Root Zone (SRZ) [m]:	1.72
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Citrus Tree ID #111

2 Orton Road

Tree Details

Latin Name:	Citrus species
Tree Height (Estimated) [m]:	3
Canopy Spread [m]:	2.5
DBH [cm]:	15
Health:	Good
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.49
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Citrus Tree ID #112

2 Orton Road

Tree Details

Latin Name:	Citrus species
Tree Height (Estimated) [m]:	3
Canopy Spread [m]:	2.5
DBH [cm]:	15
Health:	Good
Structure:	Fair
Problems:	Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.61
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Citrus Tree ID #113

2 Orton Road

Tree Details

Latin Name:	Citrus species
Tree Height (Estimated) [m]:	3.5
Canopy Spread [m]:	4
DBH [cm]:	17
Health:	Good
Structure:	Fair
Problems:	Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2.04
Structural Root Zone (SRZ) [m]:	1.61
Useful Life Expectancy:	20-40 years
Retention Value:	High
Risk of Harm Number:	Not applicable

Photos Street View Map View

Citrus Tree ID #114

10 Selby Street

Tree Details

Latin Name:	Citrus species
Tree Height (Estimated) [m]:	3.5
Canopy Spread [m]:	2
DBH [cm]:	15
Health:	Fair
Structure:	Fair
Problems:	Deadwood minor <50, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.57
Useful Life Expectancy:	11-20 years
Retention Value:	Medium
Risk of Harm Number:	Not applicable

Photos Street View Map View

Citrus Tree ID #115

2 Orton Road

Tree Details

Latin Name:	Citrus species
Tree Height (Estimated) [m]:	2
Canopy Spread [m]:	2.5
DBH [cm]:	16
Health:	Fair
Structure:	Poor
Problems:	Decay, Deadwood minor <50, Epicormic growth
Notes:	
Priority:	Not applicable
Tree Work:	No Works
Observation Comments:	
Tree Protection Zone (TPZ) [m]:	2
Structural Root Zone (SRZ) [m]:	1.61
Useful Life Expectancy:	6-10 years
Retention Value:	Low
Risk of Harm Number:	Not applicable

Photos Street View Map View

Tree Works List - Lot 47 Orton Road, Shenton Park - November 2023

Tree Id	Latin Name	Tree Age	Tree Height [m]	Canopy Spread [m]	DBH [cm]	DRF [cm]	Health	Structure	Problems	Priority	Tree Work
8	*Eucalyptus marginata*	Mature	15	9	52.2	78	Poor	Fair	Canopy thinning evident, Chlorotic foliage, Deadwood major >50, Epicormic growth	Moderate	Add nutrients, Remove major deadwood
14	*Melaleuca bracteata*	Mature	8	6	45	55	Very Poor	Poor	Deadwood major >50, Decline, Dieback, Leaning	High	Remove Tree
16	*Eucalyptus marginata*	Mature	15	10	75	84	Good	Fair	Codominant Stem, Deadwood major >50, Epicormic growth, Included bark	Moderate	Remove major deadwood
20	*Corymbia citriodora*	Mature	20	15	53	68	Poor	Fair	Canopy thinning evident, Deadwood major >50, Decline	Moderate	Add nutrients, Remove major deadwood
25	*Eucalyptus globulus*	Mature	15	6	71	83	Poor	Poor	Codominant Stem, Deadwood major >50, Decline, Epicormic growth, Leaning	Moderate	Add nutrients, Remove major deadwood
26	*Corymbia citriodora*	Mature	28	25	91	102	Poor	Fair	Canopy thinning evident, Deadwood major >50, Decline, Epicormic growth	High	Add nutrients, Remove major deadwood
27	*Corymbia citriodora*	Mature	25	16	69	91	Good	Fair	Deadwood major >50	Moderate	Remove major deadwood
37	*Eucalyptus marginata*	Mature	15	6	46.07	58	Poor	Fair	Canopy thinning evident, Deadwood minor <50, Decline, Epicormic growth	Moderate	Add nutrients
38	*Eucalyptus marginata*	Mature	14	10	69.33	83	Fair	Fair	Canopy thinning evident, Deadwood major >50, Epicormic growth, Multi Crown leaders	Moderate	Add nutrients, Remove major deadwood

40	*Eucalyptus marginata*	Mature	16	9.5	57.01	74	Poor	Fair	Basal bifurcation, Canopy thinning evident, Deadwood major >50, Decline, Epicormic growth, Previous limb failure	Moderate	Add nutrients, Remove major deadwood
46	*Eucalyptus camaldulensis var. camaldulensis*	Mature	20	18	78	94	Good	Fair	Deadwood major >50, Epicormic growth	Moderate	Remove major deadwood
47	*Eucalyptus globulus*	Mature	17	6	65	73	Poor	Fair	Deadwood major >50, Decay, Epicormic growth	Moderate	Add nutrients, Remove major deadwood
58	*Eucalyptus globulus*	Mature	18	12	80	99	Fair	Fair	Deadwood major >50, Epicormic growth	Moderate	Remove major deadwood
60	*Eucalyptus marginata*	Mature	11	8	90.21	124	Poor	Fair	Basal bifurcation, Canopy thinning evident, Chlorotic foliage, Deadwood major >50, Epicormic growth	High	Add nutrients, Remove major deadwood
71	*Hymenosporum flavum*	Mature	10	6	32	42	Poor	Fair	Codominant Stem, Deadwood major >50, Decline, Dieback	Moderate	Add nutrients, Remove major deadwood
81	*Callistemon Kings Park Special*	Semi mature	3	1	22	26	Very Poor	Very poor	Decline, Epicormic growth, Lopped	Moderate	Remove Tree
82	*Callistemon Kings Park Special*	Semi mature	4.5	3.5	25	31	Very Poor	Very poor	Decline, Epicormic growth, Lopped	Moderate	Remove Tree
83	*Callistemon Kings Park Special*	Semi mature	2	15	40	48	Very Poor	Very poor	Decline, Epicormic growth, Lopped	Moderate	Remove Tree
92	*Eucalyptus marginata*	Mature	14	11	67	75	Fair	Fair	Canopy thinning evident, Codominant Stem, Deadwood minor <50, Epicormic growth	Moderate	Add nutrients
101	*Triadica sebifera*	Mature	4.5	2.5	18	22	Poor	Fair	Deadwood minor <50, Decline, Dieback, Vine growth	Moderate	Add nutrients
102	*Triadica sebifera*	Mature	4.5	2.5	22	25	Dead	Poor	No problems	Moderate	Remove Tree

Paperbark Technologies Pty Ltd
PO Box 1116
Scarborough WA 6922
Mob: 0401 817 551
zana@paperbarktechnologies.com.au
www.paperbarktechnologies.com.au
ISA Certified Arborists AU-0039A, AU-341A, AU-0351A
Quantified Tree Risk Assessor Lic-1082, 3442, 6146, 7265
Diploma of Horticulture/Arboriculture

Appendix C – Engineering Services Report

Lot 47 Orton Rd, Shenton Park

Engineering Services Report

Project No: 23-335

pritchard francis
civil and structural engineering consultants

Table of Contents

Revision	Description	Author	Date
A	Client Issue	Andrew Tucker	17 Nov 2023

1 Introduction

1.1 General

Pritchard Francis has been engaged to prepare this engineering services report for OP Properties & Alinea. The purpose of this report is to identify existing site conditions, existing services, and potential upgrades required to facilitate the proposed redevelopment of Disability services and support organization buildings of Lot 47 Orton Rd, Shenton Park.

The development area is located within the City of Nedlands and bounded by Orton Road to the south and shares its eastern boundary with City of Subiaco i.e., Selby Street. Figure 1 below depicts an aerial photograph of the site.

Figure 1 – Aerial Photograph of Proposed Development Site (7 October 2023)

This report outlines the capacity of existing utilities to service the development. The services under assessment are:

- Water and Sewer Reticulation (Water Corporation WA)
- Drainage (Water Corporation)
- Gas (ATCO Gas Australia)
- Power (Western Power)
- Communications (Telstra, NBN)

In addition to a utility services capacity assessment, the report also covers geology of the development.

1.2 Consulting Scope of Work

Pritchard Francis's scope of work includes the following:

- Engineering servicing report outlining existing services and constraints of the redevelopment of the site.

1.3 Report Qualifications

In line with this report, Pritchard Francis make the following qualifications:

- This report was prepared exclusively for OP Properties & Alinea. Unless otherwise stated, the use of this report by third parties is not permitted.
- The information provided in this report may be considered valid for six (6) months from the date of the revision.
- The information provided in this report is based upon the information and documentation provided by the developer and project architect. Pritchard Francis have relied on such information and documents being true. Where we are uninformed of developments outside of this report, Pritchard Francis cannot be held responsible or liable for any problems or issues that may arise as a consequence.
- Assumptions have been made which, if incorrect, have the potential to impact the recommendations of this report. Major development implications existing through avenues which cannot be assured at the time of this report, including the upgrading and provision of utility services, WAPC Conditions, DA Conditions, Local Authority Scheme Requirements, timing of adjacent developments, etc.
- Unless otherwise stated, the capacity of existing services has not been verified via engineering calculations. Where required, external consultants may need to be engaged to provide accurate assessments of existing and future servicing capacity.
- An underground service scan has not been completed and information containing existing service information may differ from the physical service locations. Where possible, Pritchard Francis recommend verifying existing service locations and conditions.
- The civil designs presented in this report are conceptual in nature, and by no means depict the ultimate design solution. Detail design and documentation will be necessary to validate all design levels and gradients to ensure compliant with the client brief, Australian Standards, Austroads and relevant authority guidelines.
- Where design is carried out by third parties using information provided by Pritchard Francis, it is recommended that Pritchard Francis be engaged or involved in the design process.

2 Information Sources

The table below outlines the background and service information obtained by Pritchard Francis to facilitate this report.

Description of Data	Obtained From	Date
Before You Dig Australia	1100	25 October 2023
Water Corporation Data (Sewer)	Water Corporation (ESINet)	25 October 2023
Aerial Imagery	MetroMap	07 October 2023
Groundwater Data / Acid Sulphate Soils Risk Mapping	Department of Water & Environmental Regulation	25 October 2023
1:50,000 Geology Mapping Series	Department of Water & Environmental Regulation	1986
Geotechnical Desktop Review	Geotechnical and Geological Consultants	31 October 2023
Gas	BYDA - ATCO	25 October 2023
Power	Western Power - NCMT	15 November 2023

3 Site Conditions

3.1 Geology

The geological mapping series has been obtained. Based on this mapping, it is anticipated that the soil is profile is likely to consist of:

Sand derived from Tamala Limestone (S_7) – Sand – pale and olive yellow, medium to coarse-grained, sub-angular to well-rounded quartz, trace of feldspar, shell debris, variably lithified, surface Kankar, of eolian origin.

Figure 2 – Historical Geotechnical Mapping (1986)

The findings of the GGC's desktop review suggest the site can support the proposed redevelopment.

Geotechnical suitability

Based on the information reviewed for this desktop study and the site walkover as noted above, we consider that the site is geotechnically capable of supporting the proposed redevelopment of the site. Site preparation earthworks and suitable foundations must be designed and constructed for proposed buildings in accordance with the relevant Australian Standards (refer to preliminary assessments and advice below).

Based on the site walkover, we noted that there is an existing cut slope on the boundary of the site that is un-retained, with an adjoining retaining wall on the northeast corner of the site. Based on observations by GGC and proposed development plans, a new retaining wall is likely to be required on the northern and northeastern boundary of the site and this will require additional investigations and assessments to meet the requirements of the current Australian Standards.

A predevelopment geotechnical investigation must be completed at the site in accordance with the requirements of AS1726-2017 "*Geotechnical Site Investigations*" to provide input for foundation design, to confirm requirements for site preparation earthworks, for the assessment of cut slopes and retaining walls and for the design of flexible road pavements. The geotechnical investigations for this project must be designed and specified by an experienced geotechnical engineer (refer to the following sections for more detail).

Figure 3– Geotechnical Desktop Review *by GGC (31 October 2023)*

Pritchard Francis also recommends a predevelopment geotechnical investigation of the site in accordance with the requirements of AS1726-2017 by an experienced geotechnical engineer before undertaking detailed design.

3.2 Feature Survey

A feature survey has not been provided; however, it is noted that the site sits within surrounding form and is at an elevated contour with 11.30 mAHD to 14.40 mAHD. And it theoretically confirms that the site will not require any extensive cut and fill. A detailed feature survey will be required to constitute the site characteristics and any site-specific constraints.

3.3 Acid Sulphate Conditions

Acid Sulphate Soils (ASS) are naturally occurring soils that contain iron sulphide minerals and are being in undisturbed states below the water table. When the soils are excavated or exposed to air, the sulphides react with oxygen to form sulphuric acid. Care and treatment must be undertaken when carrying out construction in areas with ASS.

The Department of Water and Environment Regulation's (DWER) mapping series indicates that the site is in an area Class A; there is a low to no risk of ASS materials at this site. However, if site characteristics or local knowledge indicate the potential presence of ASS, further investigations are recommended, particularly if excavating more than 100 cubic metres of soil or carrying out dewatering/drainage works.

3.4 Groundwater

Groundwater is reasonably deep to surface with a natural surface at 11.30 mAHD to 14.40 mAHD and water table ranging from 7.0m to 9.0m. The mapping indicates that the groundwater is moderately Saline with Total Dissolved Solids between 1000-1500mg/l. The site is in proclaimed Nedlands groundwater area.

3.5 Contamination

Consideration of the former use(s) will need to be considered. The site was developed around 1974, according to the aerial photograph (Figure 5), the sub-divided Lots were developed and extended further around 1983 with covered walkways. This imagery suggests that the development was carried in stages and as a result services are built in stages.

Montario Quarter has been remediated from its historical impacts in several stages by Development WA. Aurora Environmental is completing an investigation in parallel to determine any impacts/contamination of this site.

Figure 4– Aerial Photograph (1964)

Figure 5– Aerial Photograph (1974)

Figure 6– Aerial Photograph (1983)

4 Infrastructure

4.1 Sewerage Reticulation

The Water Corporation Esinet data indicates the location of sewer reticulation mains within the vicinity of the proposed development:

- Ø225mm PVC-U stub is available in SE corner of the site.
- Existing connection is considered suitable for intended development.
- The Water Corporation would need to confirm network capacity when ultimate yield established.

Figure 7 – Extract from Water Corporation ESINet (October 2023)

4.2 Water Reticulation

The Water Corporation Esinet data indicates that the development area is in proximity to the following water reticulation mains:

- Ø150 RC main located in the eastern verge of Selby St with existing Ø100 Fire service and Ø100 Domestic service connection.
- 250P-12 running on the southern side of Orton Rd entrance passing towards Sadka Ln.

A hydraulic consultant will be required to confirm each individual development site at the time of future development. Although Pritchard Francis do not have access to water pressure and flow test results, it's assumed that the redevelopment of Lot 47 will make use of existing water supply to the site from the existing connections and require pumps and tanks to achieve code compliance.

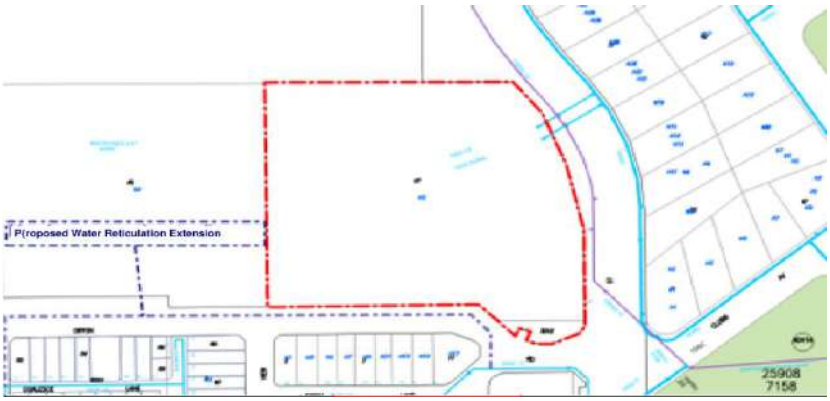


Figure 8 – Extract from BYDA (October 2023)

The DN250 water main running on the southern side of the site passing towards Sadka Ln must be extended 300m to service the adjacent Lots i.e., 48 & 49. Potable water and fire meters would connect to this main.

4.3 Stormwater Drainage

4.3.1 Drainage Infrastructure

The stormwater drainage data indicates that the residential development area and associated road reserves are fully serviced by stormwater drainage and ultimately infiltrate or interface with the Water Corporation's main drainage infrastructure.

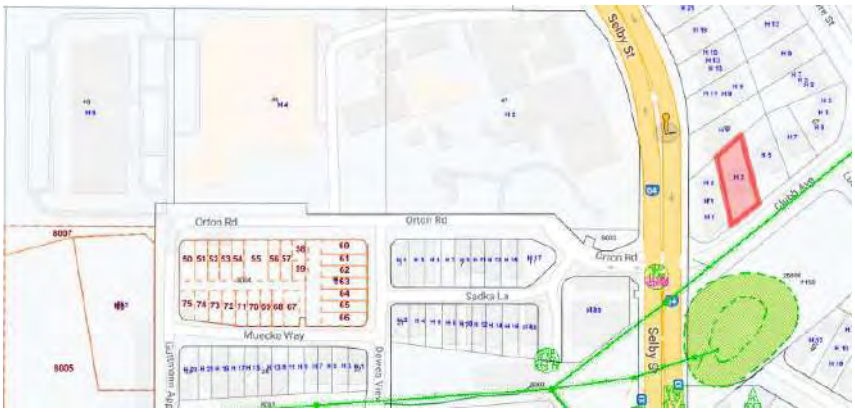


Figure 9 – Extract from Watercorp Esinet (October 2023)

The current site is free from any impacts of 1:100-year storm events and overland water flow. Pritchard Francis recommends developing an on-site stormwater management system to serve 1%AEP storm in compliance with City of Nedlands drainage requirements.

4.3.2 City of Nedlands Drainage Requirements

The City of Nedlands requires that stormwater drainage infrastructure for residential properties to cater for storm events up to the 100year ARI storm event, with provision for underground infiltration system.

Stormwater Volume Management

The City of Nedlands uses an Infiltration System approach to Stormwater Volume Management given the predominant high permeability of the natural soils occurring within the City limits.

It is a requirement for all private development lots within the City of Nedlands to retain stormwater fully onsite up to and including the 1% Annual Exceedance Probability (AEP) rainfall event. The storage capacity of these infiltration systems shall be determined using the following parameters:

- 1% AEP Rainfall event
- 8.0m / day infiltration coefficient
- 0.9 runoff coefficient

Figure 10– Extract from City of Nedlands – Council Policy (October 2023)

4.4 Gas Supply

A Dial Before You Dig investigation indicates that there is existing gas infrastructure within the vicinity of the proposed development as below:

- 50mm PVC on the eastern side of the site,
- Ø110mm PE (MAOP – 70kpa) main, located within the southern verge of site on Orton Rd.

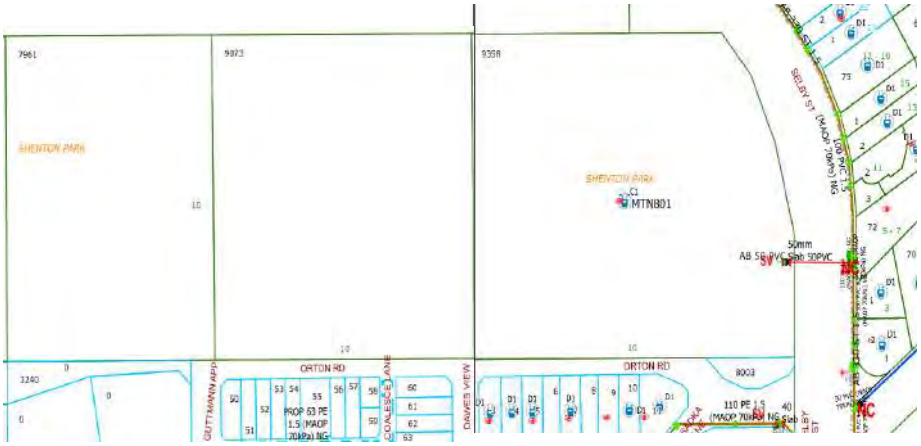


Figure 11– Extract from ATCO BYDA (October 2023)

The site is serviced from the east of the current site and is understood to extend into Lot 48 & 49. Pritchard Francis recommends having an individual supply confining the service to Lot 47.

To complete this, based on Lot 48 & 49 requiring gas connections, Pritchard Francis recommends coordinating with ATCO and extend a gas line along Orton Rd in parallel with the Water Main Extension referenced in Section 4.2.

4.5 Electrical Supply

Based on Dial Before You Dig, NCMT and Landgate investigation along with 3E consultants' advice, data indicates that there is the following existing power infrastructure within the vicinity of the proposed development.

- The Western Power Network Capacity Mapping Tool (NCMT) indicates a supply substation located in the northern side of the Site and is the only source of supply to the whole subdivision on Orton Rd.
- There is an existing District transformer on POS.

Figure 12 – Extract from NCMT (November 2023)

It's assumed that the current supply substation in the Lot 48 (and subsequently Lot 49) will remain energized on their current circuits. A new LV point of supply will need to be provided for Lot 47.

Pritchard Francis recommends having an individual power connection into Lot 47 by connecting from the transformer on the POS. Based on DVLVS / DADMD – a single transformer will be provided as a based load. Imbedded PV cells / batteries / car charger infrastructure will be 'behind the meter'.

4.6 Communications

A Dial Before You Dig investigation indicates that there is existing communications infrastructure within the proposed development as below:

- Telstra/NBN pit and pipe network located towards the southern edge.
- Telstra pit and pipe network located towards the centre of the site – marked “DEAD”.

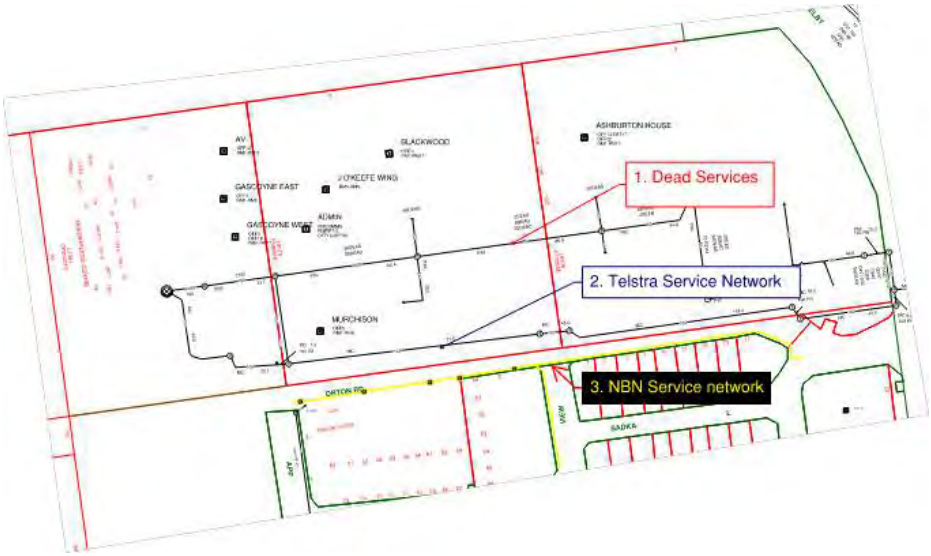


Figure 13 – Extract from Telstra BYDA (October 2023)

All the inground “dead” infrastructure within the current site is proposed to be demolished, Lot 47 can effectively utilise the existing active Telstra infrastructure.

Pritchard Francis recommends utilising the existing active Telstra network for Lot 47. It is suggested to keep the existing southern link and protect those assets as part of any redevelopment.

There’s also a new NBN network installed as part of Montario Quarter Redevelopment in Orton Road, fronting Lots 48 / 49) that could provide interconnection should the above not be suitable / accepted.

5 Conclusion

This report outlines the conditions and services supporting the proposed redevelopment on Lot 47 Orton Rd, Shenton Park.

As the site was developed in stages over a period of time, the current service connections are conjoined. The connections can be unravelled, and independent supply can be provided to eradicate interdependency.

Pritchard Francis confirm that, based on historical knowledge, the Dial Before You Dig data, GGC review and as constructed information provided by utility providers, the site is accessible and can be serviced with water, sewer, gas, stormwater drainage, electrical and communications infrastructure, and that subject to confirmation, additional service support will be required (and reasonably provided) due to the increase in demand of the proposed development and to provide single points of supply.

Appendix One: Preliminary Order of Magnitude Cost Estimate

Preliminary Order-Of-Magnitude Cost Estimate
Overall Summary - Deconstraining Works

Project Lot 47 Orton Road
Client Alinea - c/- OP Properties
Project No. 23-335.5
Revision A
Sender AT
Date 16 November 2023

Cost Summary		Comment	Amount
A	**EXTERNAL WORKS**		
1	Lot 47 Access Interface	New Crossover - Tie In (Allowance)	$ 50,000
2	Lot 47 Water	New Pumps and Tanks in Build	Not Required
3	Lot 48 Water	Extension of New DN150 on Orton Road - 300m @ $750/m	$ 225,000
4	Lot 49 Water		
5	Lot 47 Fire	New Pumps and Tanks in Build	Not Required
6	Lot 48 Fire	New Connection off Water Main (Meter Only)	$ 12,000
7	Lot 49 Fire	New Connection off Water Main (Meter Only)	$ 12,000
8	Lot 47 Sewer	Installed as part of MQ	Not Required
9	Lot 48 Sewer		
10	Lot 49 Sewer		
11	Lot 48 Headworks	Assumed 40mm / 80l/m Connection	$ 35,575
12	Lot 49 Headworks	Assumed 40mm / 80l/m Connection	$ 35,575
13	Lot 47 Power	New LV Kiosk	$ 250,000
14	Lot 48 Power	Assumed existing circuit	Not Required
15	Lot 49 Power	Assumed existing circuit	Not Required
16	General Comms	Decommissioning of Telstra - Allowance	$ 50,000
17	Lot 47 Comms	Existing	Not Required
18	Lot 48 Comms	Connection to NBN - Allowance	$ 10,000
19	Lot 49 Comms	Connection to NBN - Allowance	$ 10,000
	SUB TOTAL - EXTERNAL WORKS		**$ 690,150**
B	**PROFESSIONAL FEES**		
1	Total	Assumed 15%	$ 103,520
	SUB TOTAL - PROFESSIONAL FEES		**$ 103,520**
	TOTAL (ex GST)		$ 793,670
	GST		$ 79,400
	Contingency	Assumed 15%	$ 119,100
	TOTAL (inc GST)		$ 992,170

Notes

1 This Preliminary Order-of-Magnitude Cost Estimate is an estimate based in part on information supplied by potential suppliers and contractors and in part on our judgment as experienced and qualified engineering consultants, familiar with the construction industry.

This Estimate is based in part on costs over which Pritchard Francis has no control. These include, but are not limited to, the cost of labour, materials or services supplied by others, which are subject to change from the time of our original enquiries.

Pritchard Francis is not a Quantity Surveyor and does not employ quantity surveyors.

This Estimate represents our best judgment based on information available at the time of providing it but Pritchard Francis cannot and does not warrant that it represents the final construction cost or that any tenders or final construction costs will not vary from this Estimate.

2 Costing to be used in conjunction with 23-335 Engineering Services Report

3 Costing based on assumed / WAPC Conditions

4 Costing valid for 3 months from date above

5 No allowance for internal reconnection of Water / Fire for Lot 48 / 49

6 Assumed that performance solution for L47 can be developed on existing connection

7 Assumed that no further headworks charges are applied

Appendix D – Geotech Investigation

Geotechnical and Geological Consultants

433 Vincent Street West
West Leederville WA 6007
Ph: +61 8 6146 1196
www.ggconsultants.com.au

ABN: 69 611 127 676

TECHNICAL MEMORANDUM

To:	OP Properties Pty Ltd	From:	Colin Dickson
Attention:	Ben Watson	Date:	14 November 2023
Email:	Ben.Watson@opproperties.com.au	GGC Ref:	GGC232098-TM01-Rev1
c/c	Max Watkins	Pages:	9 (plus attachments)
Subject:	**Report on Geotechnical Desktop Review and Preliminary Site Walkover Lot 47, Orton Road, Shenton Park**		

Ben,

This memorandum provides a summary of the geotechnical desktop review and site walkover completed by Geotechnical and Geological Consultants Pty Ltd's (GGC's) at Lot 47 Orton Road, Shenton Park ('the site').

Background and proposed development

Based on your email of 10 October 2023, we understand that OP Properties Pty Ltd ('OPP') are supporting Alinea Inc. ('Alinea') with assessments in relation to the proposed redevelopment of the site for a new retirement living facility. GGC understands that the site has been, and is still currently, in use as the Quadriplegic Centre under the management of the WA Department of Health.

GGC understands that Alinea's proposed redevelopment of the site will comprise the demolition of the existing buildings followed by the construction of a new retirement living facility. The schematic design drawings provided to GGC indicate that the proposed development will comprise:

- Five new apartment buildings with between three and six levels of apartments in each.
- New community facilities, café and administration offices on the ground floor of the apartment buildings.
- A separate single storey Resident Club House building.
- Access roads and external parking at ground level for 258 vehicles (sealed pavements).

GGC understands that the existing ground surface levels will be maintained at the site (+/- 300 mm) as part of the proposed development. There are no basements proposed as part of the proposed development.

Study Objectives

The objectives of the study are summarised below:

- Complete a review of available published information and the provided geotechnical and environmental report(s) for the subject site.
- Undertake a site walkover by an experienced geotechnical engineer to observe the existing site features, including existing buildings, pavements and open areas.
- Provide a comment on the expected potential suitability of the subject site to support the proposed development.
- Provide a preliminary geotechnical assessment of the site, including preliminary recommendations for:
    - Foundation types for the proposed buildings.
    - Indicative allowable pressures for shallow footings.

  - Preliminary design parameter for piled foundations (if required).
  - Indicative subgrade CBR design values for preliminary pavement design (pavement design to be completed by others).
- Identify potential geotechnical risks and opportunities at the site relating to the proposed development, including identification of any data gaps in the available information; and,
- Provide recommendations for geotechnical investigations required to any the identified risks, and to provide information to support detailed design of the building foundations and road pavements for the proposed development.

Client provided information

OPP has provided GGC with drawings for the proposed development from SPH Architecture and Interiors (2023) titled "*Alinea Shenton Park, Site Development, Schematic Design Drawings SK01 to SK09*" dated 7 June 2023.

No investigation reports covering Lot 47 Orton Road have been provided to GGC for this desktop review. OPP have provided three reports covering the adjacent former Shenton Park Hospital Site (now part of the Montario Quarter development site) which is located on the southern side of Orton Road. The three provided reports are:

- **Douglas Partners (2015)** "*Report on Preliminary Geotechnical Investigation, Shenton Park Hospital Redevelopment, Selby Street, Shenton Park, WA*". Report Ref. 82425/1 dated 11 March 2015.
- **Golder Associates (2015)** "*Detailed Site Investigation, Shenton Park Rehabilitation Hospital*". Report Ref: 1524478-004-R-Rev0 dated 2 September 2015; and
- **Golder Associates (2018)** "*Groundwater Monitoring Event for Faecal Coliforms – Shenton Park*" Report Ref: 1542594-002-L-Rev0 dated 12 March 2018.

GGC have accepted the provided investigation reports on '*face-value*' and have not completed intrusive investigations to verify the accuracy or reliability of the information presented in the reports.

Existing site conditions

A Principal Geotechnical Engineer from GGC attended site on 25 October 2023 to meet with the nominated Site Representative from ParaQuad Industries and to complete a site walkover to observe the existing conditions at the site (external areas only). At the time of the site walkover, the weather conditions were dry and warm.

The site is a rectangular shaped block covering a total area of about 1.91 hectares (approx. 19,100 m^2) and is located at the corner of Orton Road and Selby Street, Shenton Park. The street address for the site is 2 Orton Road, Shenton Park and the site is accessible via a sealed driveway from Orton Road.

The site is elevated between about 11 m AHD and 13 m AHD based on published topographic information (https://maps.water.wa.gov.au/groundwater) with a gentle slope observed from the north/ northeast boundary of the site towards the south. An existing cut slope of up to about 1.5 m height is present on the northern boundary. The slope is cut at an angle of about 35 to 45 degrees from the horizontal and was observed by GGC to be surfaced with paving slabs (refer to ***Plate 1***).

A separate brick masonry retaining wall was present on the northeastern corner of the site (adjoining the cut slope on the northern boundary) and was retaining up to about 1.3 m. At the time of GGC site visit this retaining wall appeared to be in fair condition (refer to ***Plate 2***). No other retaining walls or cut slopes were observed by GGC during the site visit.

A car parking area with bitumen sealed pavement was observed in the southern portion of the site with some mature trees, landscaping and a sheet-metal shed also present. In the southeast corner, a landscaped area forms a set-back from Orton Road. The car parking area and access road connecting to Orton Road were observed by GGC to be a 'low spot' on the site. The bitumen sealed pavements and kerbs in this area of the site were observed by GGC to be in fair condition.

Anecdotal evidence provided by the Maintenance Officer present at the site during GGC visit, confirmed that the southern car parking area has been subjected to flash flooding in recent years. It was reported that the flooding of this area reached a depth of about 300 mm and was reported to have become an issue in recent years following upgrades to Orton Road and the residential development site on the opposite side of Orton Road. It is understood that the road levels and surface levels within the development site were raised by filling and that stormwater soakwells on Lot 47 Orton Road were not upgraded at the same time.

The eastern boundary of the site, adjacent to Selby Street, was observed by GGC as a landscaped set-back with large mature trees and grass verges. No fencing was observed by GGC along this boundary of the site.

Existing buildings with some access roads, footpaths and landscaping cover the central and northern portions of the site. The majority of the buildings were single storey and constructed from brick masonry with brick tile or sheet metal roof. The exceptions to this were occasional sheds and small building extensions that were observed to be sheet metal and a small church building of wooden frame and weatherboard construction. GGC's observations of the external areas indicated that the main buildings were founded on shallow footings with ground bearing slabs. The main buildings were observed by GGC to be in good to fair condition (based on external observations only), with no obvious signs of significant cracking or signs of foundation settlement on the outside of the buildings.

The majority of footpaths observed across the site were concrete and were generally observed to be well aligned and in good condition. The road pavements were bituminous seal and were in fair condition given the anticipated age of construction, with some signs of pavement fatigue and minor potholes present in the access road traversing parallel to the northern boundary. There were a number of repair patches observed in the road pavements across the site and most of these appeared to be associated with the installation of linear service runs across the site.

Plate 1 – Cut slope on the northern boundary of the site observed on 25 October 2023. Image taken from the northern boundary looking towards the west.

Plate 2 – Retaining wall on the northeast boundary of the site observed on 25 October 2023. Image taken from the northeast corner of the site towards the south.

Expected geology and groundwater

Based on the '*Perth*' 1:50,000 scale environmental geology map, the site, in its undisturbed form, is shown to be underlain by Sand (S_7) derived from the Tamala Limestone (Q_{ts}).

Given the development history of the site, it is possible that there will be some areas where fill materials and possible in-ground obstructions are present at shallow depth and that these features are associated with previous construction of buildings, roads and in-ground services.

As stated in the site walkover notes, the published topographic levels included on the Perth Groundwater Map indicate that the existing ground levels range between about 13 m AHD in the northeast corner of the site, to about 11 m AHD on the southern and southeast boundaries. The Perth Groundwater Map also provides maximum groundwater contours for the site based on historic water level data. The information on this map indicates that the maximum groundwater levels were about 5 m AHD, which is a between about 6 m and 8 m below the existing ground surface levels.

Review of client provided investigation reports

The three client provided investigation reports are for the former Shenton Park Hospital site located on the southern side of Orton Road (now part of the Montario Quarter development site). GGC understands that these reports were provided to OPP by Development WA.

The two reports by Golder (Golder (2015) and Golder (2018)) provide information on the environmental investigations and environmental monitoring that was completed. The Golder reports confirm that the subsurface conditions encountered at the time of the investigations comprised Sand Fill over Sand. The Golder reports also confirm that groundwater was encountered at depths of between about 7 and 15 m below ground surface in monitoring standpipes that were installed into boreholes during the investigations and groundwater monitoring events.

The report by Douglas Partners (Douglas Partners (2015) is a preliminary geotechnical report that was undertaken prior to the commencement of the redevelopment at the former Shenton Park Hospital Site. The report included a limited desktop review of published information and a summary of intrusive investigations completed at the site between 4 and 6 February 2015. The report states that the investigation work comprised 12 Cone Penetration Tests (CPTs), 13 boreholes, four in-situ permeability tests and laboratory testing on selected samples.

Based on the investigations completed, Douglas Partners (2015) identified the following subsurface conditions:

- Uncontrolled Fill to depths of between 0.3 and 2.1 m below ground level including some test locations where loose uncontrolled fill was encountered; over,
- Natural Sand (Tamala Sand) to maximum investigation depths of 20.1 m below ground level and including some test locations where loose sand was encountered; and
- Limestone (Tamala Limestone) inferred from CPT refusals at three locations on the western side of the site at depths of between 5.2 m and 7.1 m below existing ground level.
- Groundwater was not encountered in the boreholes or CPTs advanced by Douglas Partners.

Based on the results of the investigations, Douglas Partners (2015) recommendations and conclusions included:

- The site was physically capable of supporting the development for multi-story buildings provided that the recommendations of the report were implemented.
- The encountered subsurface conditions were generally in accordance with the published geological mapping.
- The site was, at the time of the investigations, considered a '*Class-P'* site in accordance with AS2870-2011 based on the depth of Uncontrolled Fill and Loose Sand encountered in the boreholes and CPTs.
- The site classification could be improved to '*Class-A*' in accordance with AS2870-2011 provided that the recommended earthworks to prepare the site for development were completed.
- Shallow foundations were considered suitable to support the proposed buildings at the site and provided a recommended maximum allowable bearing pressure of 250 kPa for pad and strip footings bearing onto sand of medium dense, or greater, relative density.
- A recommended subgrade CBR value of 12% was provided for flexible pavements, based on a compacted sand subgrade with a dry density ratio of not less than 95% MMDD.

Review of historic aerial imagery

GGC have reviewed historic aerial imagery for the site that is publicly available on the Landgate MapViewer+ Portal (https://map-viewer=plpus.app.landgate.wa.gov.au). GGC reviewed aerial imagery using this system with dates between 1953 to 2023 to develop an understanding of the recent development history. A summary of GGC's review of this information is presented in the following dot points:

- Pre 1970 image – site is shown as undeveloped bushland.
- 1970 image – site is shown to be partly developed with main buildings shown in the centre of the site under construction and other areas of the site stripped of bush vegetation and ready for development.
- 1974 image – main buildings appear to have been completed in centre of the site. Access roads are observable and car parking area in the southeast corner is in use.
- 1977 and 1979 images – some extensions observable, including interconnected buildings across the boundary with Lot 4 Orton Road (western boundary of the site) and covered walkways between main buildings in the centre of the site.
- 1989 image – some extensions and infilling in the northwest corner with existing duplex buildings and construction of sheds and church structure observable. Majority of site remains unchanged.
- 2017 image – minor additions observable including extension to the main building adjacent to the northern access road. Two storage tanks have been constructed on 4 Orton Road adjacent to the northwest boundary of the site.
- 2023 image – site layout appears to be as current observations.

GGC's review of aerial images indicates that the current development and main buildings at the site date from the 1970's, with some minor extensions and additions made in more recent years. The age of buildings and construction types observed by GGC in site walkover is in general agreement with the history of the site as discovered based on the publicly available aerial images.

Discussion and preliminary geotechnical assessment

Geotechnical suitability

Based on the information reviewed for this desktop study and the site walkover as noted above, we consider that the site is geotechnically capable of supporting the proposed redevelopment of the site. Site preparation earthworks and suitable foundations must be designed and constructed for proposed buildings in accordance with the relevant Australian Standards (refer to preliminary assessments and advice below).

Based on the site walkover, we noted that there is an existing cut slope on the boundary of the site that is un-retained, with an adjoining retaining wall on the northeast corner of the site. Based on observations by GGC and proposed development plans, a new retaining wall is likely to be required on the northern and northeastern boundary of the site and this will require additional investigations and assessments to meet the requirements of the current Australian Standards.

A predevelopment geotechnical investigation must be completed at the site in accordance with the requirements of AS1726-2017 "*Geotechnical Site Investigations"* to provide input for foundation design, to confirm requirements for site preparation earthworks, for the assessment of cut slopes and retaining walls and for the design of flexible road pavements. The geotechnical investigations for this project must be designed and specified by an experienced geotechnical engineer (refer to the following sections for more detail).

Foundation types

Based on our review of the provided information, shallow foundations are likely to be a suitable foundation option for the proposed buildings at the site. The use of shallow foundations will require all site preparation and earthworks to be completed in accordance with the requirements of AS3798-2007 "*Guidelines on earthworks for commercial and residential developments*".

For preliminary design, a maximum allowable bearing pressure of 200 kPa can be adopted for foundations bearing on to Tamala Sand with a minimum permanent footing embedment depth of 0.5 m and a minimum foundation compaction requirement of 95% Maximum Modified Dry Density.

The above recommendation is suitable for pad footings with dimensions in range 1m x 1 m to 3 m x 3 m and for strip footings up to 1 m wide. Settlements of up to 20 mm should be expected for shallow footings using these preliminary recommendations.

If higher bearing pressures are required, or the structures are sensitive to settlement, piled foundations can be considered for the proposed development and must be designed and constructed in accordance with the requirements of AS2159-2009 "*Piling – design and installation*".

Design CBR for flexible pavements

For preliminary design of flexible pavements, GGC recommends a design CBR value of 10% for pavements constructed onto a subgrade comprising natural Tamala Sand compacted to 95% MMDD.

Geotechnical risks, opportunities and investigations

Based on the desktop review summarised in this report, the following geotechnical risks and opportunities have been identified for consideration during design development and for project planning:

- Expected natural subgrade comprising Tamala Sand with preliminary maximum allowable bearing pressure of 200 kPa recommended for shallow footings based on the desktop review. The allowable bearing capacity assessment needs to be confirmed by geotechnical investigations.
- Shallow footings could be adopted where foundation sizes and bearing pressures are within preliminary recommendations. If higher loads or buildings are sensitive to settlements, piled foundations could be considered as an alternative. If piles are required, additional geotechnical investigations will be required to confirm foundation conditions.
- Potential for fill materials and possible obstructions due to previous development and demolition at the site.
- Anecdotal evidence exists of flooding in the southern portion of the site following storm events. Confirmation of subsurface conditions, infiltration rates and groundwater levels will be required for assessment of suitability of stormwater on site – to be confirmed by geotechnical investigations.
- Presence of existing cut slope and retaining wall on northern boundary. The existing cut slope is unlikely to meet the minimum design requirements per Australian Standards. An upgraded retaining wall solution or flatter cut slopes are expected to be required on this boundary as part of the proposed development. Allowances should be made in project budgets for retention of the slopes on this side of the site. Further geotechnical assessments will be required for the existing slopes and to support design of new wall/ slopes.
- Presence of mature trees across the site. The requirements for retention and protection of footings, pavements and services from potential damage to be confirmed. Options to be developed as part of detailed design and suitable allowances made in project budgets.
- Detailed geotechnical investigations will be required to provide input for detailed design including:
    - Confirmation of subsurface conditions and groundwater conditions at the site.
    - Site preparation and earthworks requirements.
    - Site classification for the site in accordance with AS2870-2011 "*Residential slabs and footings*".
    - Site subsoil class in accordance with AS1170.4.
    - Foundation design parameters and detailed assessment of allowable bearing pressures and settlement for shallow footings.
    - Design parameters for piled foundations (if required).
    - Assessment of fill material requirements and compaction levels.
    - Design parameters for retaining walls and advice regarding cut slope stability (short term and long term).
    - Assessment of subgrade conditions and subgrade design parameters for pavement design; and,
    - Assessment of subsurface conditions and assessment of suitability for stormwater disposal by infiltration.

Closure

The reader's attention is drawn to the information sheets titled "*Your Geotechnical Report*" included as an attachment to this report. The information on the attached sheets must be read in conjunction with this report.

We trust this information meets your current requirements. If you have any queries or need more information, please contact us.

For and on behalf of Geotechnical and Geological Consultants Pty Ltd.

Colin Dickson

Principal Geotechnical Engineer

Attachments

"*Your Geotechnical Report*" Information Sheets (3 pages)

1 Introduction

The information contained in this document is to inform GGC's clients of the reasonable expectations of a geotechnical report and options to mitigate geotechnical risks and consequences. This information is provided to help clients understand where GGC's responsibility as a geotechnical engineer, acting reasonably, begin and end. In doing so, it also highlights the responsibility of our client and third parties.

Please contact the GGC Project Director should you not understand the report and the limitations of the information provided.

2 Collection and Interpretation of Data

Geotechnical investigations identify subsurface conditions only at the point of investigation. The material encountered during the investigation is recorded on logs and based on a visual assessment and (if undertaken) supported by laboratory test results. In the case of an Electric Friction Cone Penetrometer Test (CPT), the data recorded is a tip pressure and sleeve friction on a rod; from which ground conditions are inferred.

Actual conditions may differ from those encountered during the investigations and / or inferred a distance from the investigation stations. In addition, the actual interface between materials or units may be gradual or more abrupt than inferred from the results of the investigation.

A Chartered Geotechnical Engineer and / or Engineering Geologist should be retained through the various stages of the project to identify variances, conduct additional tests if required, and provide recommendations to address geotechnical / geological issues identified on site. The Chartered Geotechnical Engineer / Engineering Geologist should also review the actual conditions encountered to confirm that they are consistent with those inferred in this report.

3 Change in Subsurface Conditions

The geotechnical recommendations and parameters provided in this report are based on the ground conditions encountered at the time of the geotechnical investigation. Changes in the ground conditions can occur over time and include, but are not limited to, the following:

- Filling or excavation works (or other anthropologic events);
- Flooding;
- Groundwater fluctuations;
- Earthquakes or other such events;
- Works on neighbouring sites impacting on the subject site; and,
- Migration of pollutants from neighbouring properties.

GGC should be consulted if there is any protracted delay in the issue of this report and the use of the recommendations provided.

It is important to note that where ground conditions have changed, additional geotechnical investigations and testing may be required to assess the impacts of the changed ground conditions.

4 Specificity of Report

This geotechnical report has been prepared for a specific project and design; therefore, it has been written to address specific geotechnical issues. In doing so, the following has been taken into account:

- The project objectives as described in the report;
- The client's budget and programme constraints;
- The specific site mentioned in the report; and,
- The nature and extent of the development at the site.

This report should not be used for any other purpose other than what has been specifically described and should not be relied upon if:

- The report was not written for you;
- The report was not written for your specific site;
- The report does not address your specific development;
- There is a significant delay between undertaking the report and developing the site; or,
- Significant changes to the site have occurred.

Where the information and recommendations contained within this report are being used by others, GGC should be engaged during the design process to engage with the other members of the design team and review works being produced by the other design team members to confirm that it is consistent with the geotechnical report.

5 Environmental Issues

Unless specifically addressed in this report, environmental and contamination considerations are not included. The investigation methods required for environmental investigation often differ to those used for geotechnical investigations and the information contained within this report may not be appropriate for use by environmental engineering consultants and scientists.

This report was not prepared to address environmental issues and the client is responsible to ensure environmental considerations have been taken into account for the project. GGC can provide information on environmental engineering consultants, should this be required.

6 Construction

The method of ground investigation used for geotechnical investigations limits GGC's ability to know every detail about the ground conditions on site. GGC use reasonable engineering judgement to form an assessment of the subsurface conditions at the site based on information obtained at specific locations.

Ground conditions may be encountered during construction that were not anticipated during the geotechnical investigation. Should this be the case, GGC should be engaged to provide construction support as a means of mitigating the consequence of encountering unexpected ground conditions.

7 Responsibility of Others

GGC has prepared this report for the use by our client. GGC does not accept any responsibility from any third party, other than our client, who uses the information contained in this report. GGC takes no responsibility for any damages suffered by any third party as a consequence of any decisions or action that have been made based on this report.

Further information regarding the responsibility of clients and other third parties should also be obtained from the following:

- "Guidelines for the Provision of Geotechnical Information in Construction", published by the Institution of Engineers Australia;
- Australian Standard AS 2870 – 2011, Residential Slabs and Footings;
- Australian Standard, AS 5100 – 2004, Bridge Design Set; and,
- Any other Standard or Code of Practice applicable to the development.

Appendix E – Indicative Landscape Masterplan

Legend

- Indicative Deep Soil Areas
- Indicative Proposed Trees
- Moderate Retention Value Trees
- Higher Retention Value Trees
- Potentially Retained Trees

All subject to architectural and landscape design and review of retention practicability

Indicative Landscaping Masterplan

Lot 47 Orton Road, Shenton Park

Date: 13 June 2024 Scale: NTS @A3 Drawing No. **23-210** Staff: CCG Checked: AH

element.

Level 18, 191 St Georges Terrace, Perth Western Australia 6000.
PO Box 7375 Cloisters Square, Perth Western Australia 6850.
T. +61 8 9289 8300 | **E.** hello@elementwa.com.au **elementwa.com.au**

Appendix F – Bushfire Management Plan

Bushfire Management Plan
Lot 47 Orton Road, Shenton Park

Prepared for:
Alinea Inc.

Prepared by:
Surefire Environmental Pty Ltd
sue@surefireenvironmental.com
0439 435 110

Surefire Environmental Pty Ltd

Lot 47 Orton Rd, Shenton Park
Bushfire Management Plan

Distribution List:

Company	Contact name	Date
OP Property	Ben Watson	14 March 2025
Alinea Inc.	C/- OP Property	14 March 2025

Version

Version	Prepared By	Authorised By	Date
Draft for Client Review	Sue Brand	Sue Brand	21 February 2025
Final	Sue Brand	Sue Brand	14 March 2025

Disclaimer

This report has been prepared for **Alinea Inc.** based on their instructions and information provided by them and therefore may be subject to qualifications which are not expressed. No other person other than those authorised in the distribution list may use or rely on this report without confirmation in writing from Surefire Environmental and **Alinea Inc.**. Surefire Environmental has no liability to any other person who acts or relies upon any information contained in this report once accepted by Peet Ltd.

This Document may be:

- used by:
  - **Alinea Inc.** along with their consultants and contractors
  - the City of Nedlands
  - purchasers/occupiers of premises with Lot 47 Orton Rd Shenton Park
- may not be reproduced or transmitted in any form or by any means whatsoever to any person without the written permission of the Copyright holders.

Table of Contents

Tables

Figures

1. Background Information

Alinea Inc. is in the process of progressing the redevelopment of Lot 47 Orton Road, Shenton Park (the Site, Lot 47), within the City of Nedlands (Figure 1). To inform that process, Surefire Environmental Pty Ltd (Surefire Environmental) was commissioned by OP Properties on behalf of Alinea Inc. to prepare a bushfire management plan (BMP) for the development (Figure 1). The broad aim of the assessment process associated with preparation of the BMP was to identify potential bushfire risk to future properties and their management when building construction occurs.

1.1 Location

The Site is located within the City of Nedlands (Figure 2), and is:

- located approximately 5.7 km west of the Perth central business district within the City of Nedlands
- approximately 2 ha in area
- bounded by remnant bushland to the north, existing and progressing residential development is present to the east and south, and existing land uses to the west
- zoned urban development under Local Planning Scheme 3, and urban under the Metropolitan Region Scheme (MRS).

1.2 Bushfire Prone Status

Lot 47 is located within a bushfire prone area as designated by the Fire and Emergency Services Commissioner, Office of Bushfire Risk Management (OBRM), within the Department of Fire and Emergency Services (OBRM, 2024; Figure 3). Accordingly, there is a requirement for landowners to undertake an assessment to determine the risks and identify appropriate management strategies such that the development does not increase the inherent bushfire risk. Portions of the site that are located within 100 m of vegetation designated as being bushfire prone necessitate the need for a bushfire attack level assessment (BAL-assessment) as a minimum and assigning a BAL-rating that will determine appropriate construction standards as per *AS 3959:2018 Construction of Buildings in Bushfire Prone Areas* (*AS 3959:2018*).

The BAL assessment component of this document considers current and projected site conditions (i.e. vegetation classification pre- and post-development), along with the provisions of *State Planning Policy 3.7 Bushfire (SPP3.7)* (Department of Planning, Lands and Heritage (DPLH)), and the Western Australian Planning Commission (WAPC) (2024b) and *Planning for Bushfire Guidelines* for the Implementation of State Planning Policy 3.7 Bushfire

(*the Guidelines*) (Department of Planning, Lands and Heritage and the Western Australian Planning Commission, 2024a).

1.3 Aims and Objectives

The aim of this BMP is to outline the bushfire management methods and requirements that will be implemented within the proposed development area. Accordingly, broad aims include:

- reduce the occurrence of and minimise the impact of bushfire to the life and property of future residents and the environment
- allow easy access for firefighters if a bushfire does occur
- protect the landscape within the Site as far as is possible
- document bushfire prevention requirements of the area to which it relates.

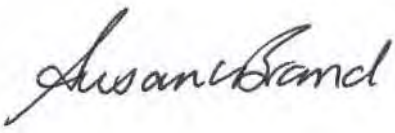
The objectives of this Bushfire Management Plan are to:

- define land use areas and values within Lot 47, with the entire Lot to developed as retirement living/independent living units and associated infrastructure over multiple Stages
- define and assess the bushfire hazard according to the various vegetation classifications present
- outline the roles and responsibilities of individuals and organisations in relation to bushfire management as it relates to Lot 47
- document bushfire management strategies for the Site, taking into consideration:
  - vegetation to be retained to the north of the Lot 47 boundary in Bush Forever Site 119 and other land owned by the University of Western Australia (Figure 2)
  - the need for building construction standards where vegetated patches interface with the urban development
  - any need to identify access for firefighting operations and daily maintenance in and around vegetated patches and stages of development
  - document the performance criteria and acceptable solutions adopted for the Site.

1.4 Document Preparation

Sue Brand (Surefire Environmental), an accredited Level 2 Bushfire Planning and Design (BPAD) practitioner with the Fire Protection Association Australia, has prepared this document. Activities involved with its preparation included:

- assessing the vegetation type and class present within and adjacent to the proposed development site using descriptions provided in *AS 3959:2018*
- determining BAL-ratings for each building located within 100 m of any classified vegetation based on currently available information
- suggesting management strategies that will be implemented based on current and projected site considerations.



Signed:
Date: 14 March 2025
Accreditation Number: BPAD36638
Accreditation Expiry Date: 30 April 2025

BPAD
Bushfire
Planning & Design
Accredited Practitioner
Level 2

Figure 1: Proposed Development Area

386,600 386,700 386,800 386,900 387,000 387,100 387,200

6,464,300
6,464,200
6,464,100
6,464,000

N

Block C
Block D
Block B
Resident Club House
Block E
Block A
Orton Road
Guttman App
Dawes View
Sadka Lane
Sadka Lane
Muecke Way
Selby Street
ok Place

Legend

- Proposed Layout
- Site boundary
- 100 m BAL-assessment Area
- 150 m Vegetation Classification Assessment Area

Scale: 1: 1,800
Original Size: A3
Aerial Imagery: NearMap May 2022
Grid: GDA94 / MGA zone 50 (EPSG:28350)
0 50 100 m

Lot 47 Orton Rd Shenton Park
Bushfire Management Plan
Alinea Inc.

Figure 2

Location

C:\Users\Sue. B\Documents\My Documents\Surefire Environmental\Client Folders\Alinea\Selby St Shenton Park\GIS\Selby ST BAL.qgz 04/03/2025 F2 Location 2025

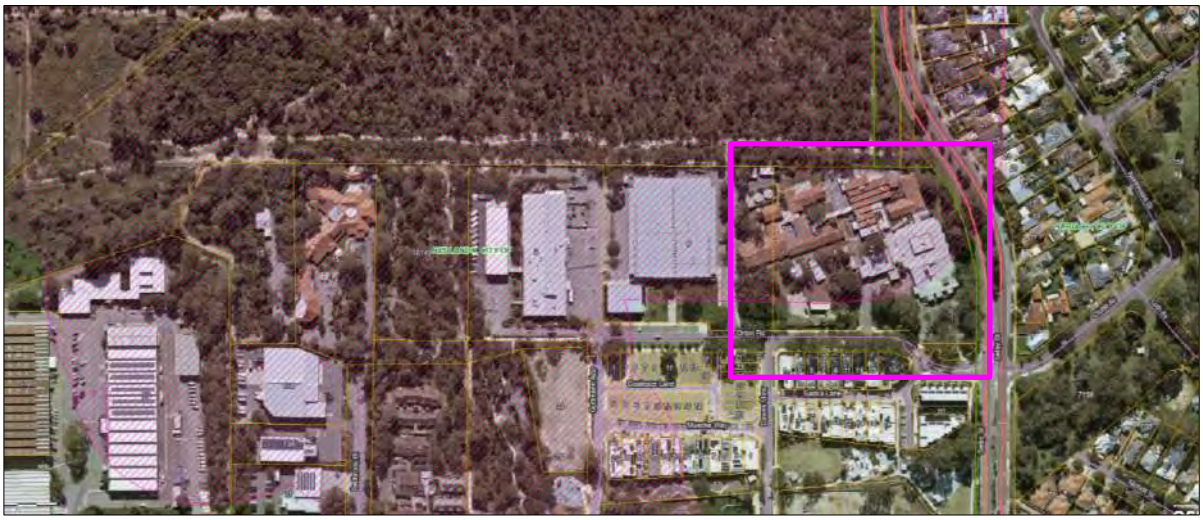


Figure 3: Site Bushfire Prone Status (OBRM, 2024)

Bushfire Prone Area 1

2. Environmental Considerations

2.1 Regional Context

Perth is located within the Swan Coastal Plain region of the Interim Biogeographical Regionalisation of Australia (IBRA). The Swan Coastal Plain comprises of two major divisions, namely Swan Coastal Plain 1 – Dandaragan Plateau and Swan Coastal Plain 2 – Perth Coastal Plain. The Site is in the Perth Coastal Plain subregion, which is broadly characterised as including areas of Jarrah and Banksia woodlands on sandy soils in a series of sand dunes, along with wetland areas, often within the interdunal swales (Mitchell, Williams, and Desmond, 2002).

2.2 Environmental Considerations

Lot 47 is a single Lot that has been developed since the early 1970's, with the planned development requiring the demolition and removal of all existing buildings and associated infrastructure, thus there are no current environmental considerations within the Site boundary. Accordingly, there are no

- Bush Forever sites, with the closest being Bush Forever Site 119 Underwood Bushland in Lot 4 to the immediate north of Lot 47
- wetlands or waterways, with the closest wetlands being a conservation category artificial lake approximately 900 m to the northeast and Lake Jualbup that is classified as a resource enhancement sumpland approximately 800 m to the southeast
- conservation significant ecological communities, flora, or fauna species, noting that Bush Forever Site 119 to the immediate north is inferred to be the Banksia Woodlands threatened ecological community (TEC) (Commonwealth) and priority listed ecological community (PEC) (WA).

2.3 Native Vegetation – Modification and Clearing

Lot 47 is currently cleared of native vegetation with some trees present around the Site in garden beds that meets the definition of low threat vegetation that is subject to Exclusion Clause 2.2.3.2 (f) of *AS 3959:2018*. All buildings and vegetation on Site are expected to be cleared to facilitate the planned development of the Site (Figure 4).

Figure 4: Current Land Use

2.4 Revegetation

No revegetation will occur within the Lot 47 boundary.

2.5 Landscaping

Some landscaping of amenity areas in the form of garden beds similar to those currently present within and near to the Site will occur at the conclusion of construction, with those areas meeting the definition of low threat vegetation subject to Exclusion Clause 2.2.3.2 (f) of *AS 3959:2018* on the basis of management.

3. Bushfire Assessment Results

This section outlines the outcomes of the bushfire assessment process.

3.1 Contours and Slope

A review of available contour data indicates that that land within Lot 47 rises from the south towards the north and northeast, meaning the Class D Scrub present in Lot 4 to the north is upslope, and this is the slope that has been applied for the BAL-assessment component of this document (Figure 5).

386,600 386,700 386,800 386,900 387,000 387,100 387,200

6,464,300 6,464,200 6,464,100 6,464,000

N

Orton Road
Guttman App
Muecke Way
Dawes View
Sadka Lane
Sadka Lane
Selby Street

Legend

Slope

- Class D Scirb- Upslope or flat to the north
- Contours (2m)
- Site boundary
- 100 m BAL-assessment Area
- 150 m Vegetation Classification Assessment Area

Scale: 1: 1,800
Original Size: A3
Aerial Imagery: NearMap May 2022
Grid: GDA94 / MGA zone 50 (EPSG:28350)
0 50 100 m

Lot 47 Orton Rd Shenton Park
Bushfire Management Plan
Alinea Inc.

Figure 5

Contours and Slope

C:\Users\Sue. B\Documents\My Documents\Surefire Environmental\Client Folders\Alinea\Selby St Shenton Park\GIS\Selby ST BAL.qgz 04/03/2025 F5 Contours and Slope 2025

3.2 Vegetation Classification

Vegetation on and within 150 m of the Site was assessed during several visits to the Site, with the most recent being 23 January 2025, using descriptions provided in Table 2.3 and Figure 2.4 of *AS 3959:2018*. Each vegetation class is discussed and shown in Figure 6, Figure 7, and Figure 8. The pre-development vegetation classification for the Site is provided in Figure 9. As there will be no significant change to the classified vegetation in Lot 4 to the north, a post-development vegetation classification map has not been provided.

3.2.1 Patch 1: Class D Scrub

Class D Scrub is characterised by shrubs to 4 m with a continuous canopy from ground level, along with the occasional tree to 6 m. This vegetation class is present in Bush Forever Site 119 in Lot 4 to the north (Figure 6) and will be the main determinant of BAL-ratings for the proposed buildings as it will be retained in the longer term. It is characterised by Banksia Woodland with the occasional taller tree.

Patch: 1	**Classification:** Class D Scrub
	
Photo ID 1	

Photo ID 2

Photo ID 3

Photo ID 4

Figure 6: Class D Scrub

3.2.2 Patch 2: Low Threat Vegetation

Clause 2.2.3.2 of *AS* 3959*:2018* outlines various exclusion clauses for low threat vegetation and non-vegetated areas. Exclusion clause 2.2.3.2 (f) applies to vegetation that is characterised as low threat by factors such as flammability, moisture content, or fuel load and includes grassland managed in a minimal fuel condition, maintained lawns, playing fields, golf courses (fairways and playing areas), maintained public reserves, parklands, vineyards, orchards, nature strips, windbreaks, and cultivated gardens.

Low threat vegetation is vegetation present within and near to Lot 47 includes various garden beds and maintained areas that are unlikely to present a major bushfire risk. This type of vegetation is present in the form of managed landscaped areas in various garden beds and outdoor areas in Lots 47 and 48, as well as in Charles Stokes Reserve across Selby Street to the west, where the site is maintained as turf with some retained trees (Figure 7).

Patch: 2 **Exclusion clause:** 2.2.3.2 (f) – Landscaped and managed areas

Photo ID 5

Photo ID 6

Photo ID 7

Photo ID 8

Photo ID 9

Figure 7: Low Threat Vegetation

3.2.3 Patch 3: Non-Vegetated Areas

Non-vegetated areas are subject to exclusion clause 2.2.3.2 (e) of *AS 3959:2018*, with those within and close to the Site including (Figure 8):

- roads, footpaths, access ways, and parking areas
- existing buildings.

Patch:	3	**Exclusion Clause:**	Non-vegetated Areas, Clause 2.2.3.2 (e)

Photo ID 10

Photo ID 11

Photo ID 12

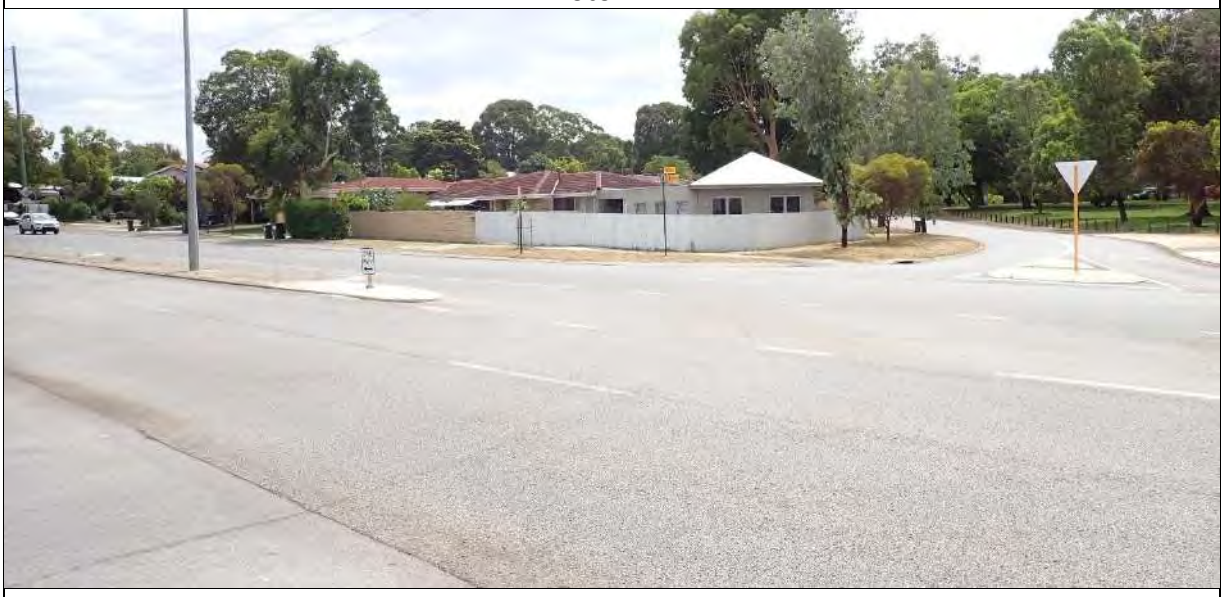


Photo ID 13

Figure 8: Non-vegetated Areas

386,600 386,700 386,800 386,900 387,000 387,100 387,200

6,464,300 6,464,200 6,464,100 6,464,000

N

1 2 3 4 5 6 7 8 9 10 11 12 13

Orton Road

Guttman App

Muecke Way

Dawes View

Sadka Lane

Sadka Lane

Selby Street

Legend

Vegetation Classification

- Class D Scrub
- Low-threat vegetation
- Non-vegetated
- Photo Points
- Site boundary
- 100 m BAL-assessment Area
- 150 m Vegetation Classification Assessment Area

386,600 386,700 386,800 386,900 387,000 387,100 387,200

Scale: 1: 1,800
Original Size: A3
Aerial Imagery: NearMap May 2022
Grid: GDA94 / MGA zone 50 (EPSG:28350)
0 50 100 m

Lot 47 Orton Rd Shenton Park
Bushfire Management Plan
Alinea Inc.

Figure 9

Vegetation Classificaton as per AS 3959:2018

C:\Users\Sue. B\Documents\My Documents\Surefire Environmental\Client Folders\Alinea\Selby St Shenton Park\GIS\Selby ST BAL.qgz 04/03/2025 F9 Veg Class 2025

3.3 Fire Danger Index (FDI)

The Fire Danger Index for this site is FDI 80, as documented in Table 2.4.3 of *AS 3959:2018* and which is the nominated FDI for Western Australia.

3.4 Potential Bushfire Impacts

Potential bushfire impacts within the Site include smoke, ember attack, and radiant heat, with the BAL-analysis provided in Table 1.

Table 1: BAL-analysis

Patch	Vegetation Class	Slope	Separation Distance (m)	Maximum BAL-rating
1	Class D Scrub	Upslope	> 20	BAL-19
2	Low Threat Vegetation	N/A	N/A	BAL-Low
3	Non-vegetated areas	N/A	N/A	BAL-Low

3.5 BAL-Assessment

For buildings within fire prone areas, an ideal hazard separation zone of at least 100 m between vegetation and building walls that includes a 20 m asset protection zone (APZ) is preferred. Where that is not possible, the requirements of *AS 3959:2018* can be applied as an acceptable solution.

The BAL-assessment for the development indicates that (Figure 10):

- Blocks C and D extend into the BAL-19 zone and has been assigned a **BAL-19** rating
- Block B/Admin building, the Resident Club House, and Block E are in the BAL-12.5 zone and have been assigned a **BAL-12.5** rating
- Block A is located more than 100 m from the classified vegetation to the north and is rated **BAL-Low**.

Each distinguishable building excluding sheds and other non-habitable buildings have been assigned a BAL-rating based on the current configuration and connectivity, where appropriate, between buildings, noting that the planned buildings will be Class 2. Changes in configuration could result in an adjustment to BAL-ratings, with the bushfire implications of any changes to be reviewed prior to implementation.

386,720 386,800 386,880 386,960 387,040

6,464,240

6,464,160

6,464,080

N

Block C

Block D

Block B

Resident Club

House

Block E

Block A

Orton Road

Legend

BAL-ratings

- BAL-Low
- BAL-12.5
- BAL-19

BAL-contours

- BAL-12.5 Zone
- BAL-19 Zone
- BAL-29 Zone
- BAL-40 Zone
- BAL-FZ Zone
- Proposed Layout
- Site boundary
- 100 m BAL-assessment Area
- 150 m Vegetation Classification Assessment Area

386,720 386,800 386,880 386,960 387,040

Scale: 1: 1,000
Original Size: A3
Aerial Imagery: NearMap May 2022
Grid: GDA94 / MGA zone 50 (EPSG:28350)

0 50 100 m

Lot 47 Orton Rd Shenton Park
Bushfire Management Plan
Alinea Inc.

Figure 10

BAL-contours and Ratings

C:\Users\Sue. B\Documents\My Documents\Surefire Environmental\Client Folders\Alinea\Selby St Shenton Park\GIS\Selby ST BAL.qgz 12/03/2025 F10 BAL-contours

3.6 Asset Protection Zone

The Asset Protection Zone (APZ) for the Site is the area that provides the separation distance between the edge of the classified vegetation and building walls, with the preferred width of the APZ being 100 m. For locations where a 100 m APZ width cannot be achieved, a reduced APZ can be implemented when a BAL-rating is determined for the building, as is the case for the Blocks B, C, D, E and the Resident Club House that are the subject of this BMP, noting that Block A is located more than 100 m from the classified vegetation.

The reduced APZ commences at the junction of the BAL-40 and BAL-29 zones, or the junction of the orange and yellow zones shown in Figure 10, and will extend to the building walls which is the point where the potential radiant heat impact of a bushfire does not exceed 29 kW/m^2. As Figure 10 demonstrates that a suitable separation distance can be achieved for the proposed buildings, it indicates that the bushfire risk can be effectively managed.

3.7 Shielding

Clause 3.5 of *AS 3959:2018* allows for a reduction in the nominated construction standard for a building in a bushfire prone area where the elevation is not exposed to the source of the bushfire attack, noting that the reduction in building standard cannot reduce below BAL-12.5. The shielding provisions will apply to:

- the northern elevations of Block C facing the bushland
- the northwestern and northeastern elevations of Block D to the point where the building faces Selby St to the east.

Blocks B, E, and the resident clubhouse are rated BAL-12.5, and Block A is rated BAL-Low, thus the shielding provisions will not apply.

3.8 Other Bushfire Protection Measures

No other bushfire protection measures are required for the Site other than those documented in this BMP.

4. Assessment Against Bushfire Protection Criteria

Appendix B of the *Guidelines* (DPLH and WAPC, 2024a) provides details of the acceptable bushfire protection solutions that can be used to demonstrate how a location can be developed in bushfire prone areas.

4.1 Compliance Table

The compliance table focuses on ensuring that that the proposed development within Lot 47 design complies with Element 2: Siting and Design, Element 3: Vehicular Access, and Element 4: Water. Outcomes of how the Site will comply are provided in Table 2 with all compliance requirements able to be achieved.

Table 2: Compliance Table

Bushfire Protection Criteria	Method of Compliance – Method 1 Acceptable Solutions		Proposed Bushfire Management Strategies
Element 1: Location	O1	Area 1 Location	Not applicable – Lot 47 is an existing Lot in an Area 1 urban area that will be redeveloped for this project.
Element 2: Siting and Design	A2.1	Siting and Design	As an existing Lot that will be redeveloped, the assessment process associated with the development of this BMP indicates that the siting and design of proposed development is acceptable, with no building in a zone that will result in a radiant heat impact exceeding 29 kW/m^2 (BAL-29), with the maximum BAL-rating being BAL-19 (Section 3.6, Figure 10).
	A2.2	Asset Protection Zone	As indicated in Section 3.6 and Figure 10, the APZ between the classified vegetation and the proposed development will not result in a radiant heat impact exceeding 29 kW/m^2 (BAL-29), with the maximum BAL-rating currently being BAL-19.
	A2.3	Clearing of Native Vegetation	Not applicable as Lot 47 is an existing Lot with no native vegetation present within its boundary (Figure 9).

Bushfire Protection Criteria	Method of Compliance – Method 1 Acceptable Solutions		Proposed Bushfire Management Strategies
Element 3: Vehicular Access	A3.1	Private Driveways	Not applicable – no additional public roads or access ways will be constructed, with communal parking areas to be provided (Figure 10).
Element 4: Water	A4.1	Water Supply	Lot 47 is in an urban area with a reticulated water supply is available, with hydrant connections that will be in accordance with Water Corporation requirements. Note that the internal layout of Block A includes provision for fire pumps, two fire tanks, pumps, potable water and access for DFES in the event of a fire.

4.2 Bushfire Mitigation Measures

Required bushfire mitigation measures that will be implemented and maintained by the Developer until the Site is developed are provided in Table 3. Also provided are an indication of the responsibilities of the Developer/operator and the maintenance requirements associated with the various responsibilities.

Table 3: Bushfire Mitigation Measures

Item	Mitigation Measure	Maintenance
Developer Prior to Occupancy		
1	If required, bushfire implications are reviewed for the development if there is a change in the area (m^2) of classified vegetation to be cleared or retained, or if there is a change of development design.	As required.
2	Hydrant design requirements will be in accordance with the Water Corporation Design Standard 63 for hydrants: ▪ installation of markings to indicate the presence of hydrants ▪ clearance on the placement of hydrants is required from the Water Corporation ▪ hydrants to be clearly identifiable, with markings installed by the developer after practical completion.	As required.

Item	Mitigation Measure	Maintenance	
3	Comply with the City of Nedlands's annual fire hazard reduction notice.	As per the requirements of the City of Nedlands annual fire hazard reduction notice.	
4	Prepare a BMP compliance report to demonstrate that the relevant bushfire management measures have been implemented during development works to deliver compliance.	As required at each appropriate planning stage.	
Developer – Bushfire Clearance Requirements			
No.	**Implementation Action**	**Local Government or other agency Clearance**	**Bushfire Consultant Clearance**
1	Hydrant and water supply is in accordance with Water Corporation requirements.	✓	✓
2	Ensure that bushfire risk and mitigation is reassessed when required.		✓

5. References

AS 3959:2018 Construction of Buildings in Bushfire-Prone Areas, (2018), Standards Australia, New South Wales.

Australian Building Codes Board, (2022), *National Construction Code – Building Code of Australia*, accessed February 2025 via URL: https://ncc.abcb.gov.au/editions/ncc-2022.

Bush Fires Act 1954 (WA)

Department of Planning, Lands and Heritage (DPLH) and the Western Australian Planning Commission (WAPC), (2024a), *Planning for Bushfire Guidelines for the Implementation of State Planning Policy 3.7 Bushfire* (the Guidelines), Western Australian Planning Commission, Perth, Western Australia.

Department of Planning and Western Australian Planning Commission, (2024b) *State Planning Policy 3.7 Bushfire (SPP 3.7)*, Western Australian Planning Commission, Perth Western Australia.

Mitchell, Williams, and Desmond, (2002), *Swan Coastal Plain 2 (SWA2 – Swan Coastal Plain subregion)*, Department of Conservation and Land Management, accessed July 2024 via World Wide Web URL: https://library.dbca.wa.gov.au/static/FullTextFiles/021927.pdf.

Appendix G – Black Cockatoo Habitat Assessment

Perth
Dilhorn House, 2 Bulwer Street
Perth WA 6000
T (08) 9227 2600
F (08) 9227 2699

1 November 2024

c/- OP Properties
Unit 25, Level 1
3 Wexford Street
SUBIACO WA 6008

Attention: Max Watkins

Dear Max,

RE: Black Cockatoo Habitat Assessment, Lot 47 Orton Road, Shenton Park

Aurora Environmental (Aurora) has completed the assessment of black cockatoo habitat and vegetation at Lot 47 Orton Road, Shenton Park (the Site). The key findings of the assessment are:

- The Site contains less than one hectare (ha) of potential foraging habitat for black cockatoos and as such, a quality score cannot be assigned to it.
- There are 43 trees within the survey area, including 32 Jarrah (*Eucalyptus marginata*), that potentially provide habitat for black cockatoos.
- Of the 43 trees, there are 25 with a diameter at breast height (DBH) greater than 500 mm, including 17 Jarrah.
- As Jarrah is a locally native species and is used by black cockatoos, it is recommended that are retained where feasible. Of the 32 Jarrah trees recorded and assessed, 13 trees have a high retention score and 17 have a moderate retention score. 19 of the high or moderate retention score Jarrah trees are currently within the development envelope.
- There was one Jarrah tree with a hollow potentially suitable for use by a black cockatoo, but there was no evidence of any activity (recent or historic) in the tree or at the Site.
- The planned clearing of trees within the Site should focus on removal of alien taxa, as far as is practicable.
- Referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for impacts to black cockatoo habitat is not considered necessary due to the ongoing maintenance activities (pruning and lopping) greatly reducing canopy cover and the potential formation of hollows. In addition to this, the proposed development is not impacting on any known roosting or breeding trees.
- There are area containing Jarrah trees that may be considered to be native vegetation, as defined in the *Environmental Protection Act 1986.*

1 PROJECT OVERVIEW

Alinea currently lease the Site to the Department of Health (DoH), who provide rehabilitative and care facilities for people with quadriplegia and paraplegia on-Site (the Quadriplegic Centre). It is understood that DoH are planning to move the Quadriplegic Centre to another site. In anticipation of this, Alinea has commenced master planning for redevelopment of the Site into a retirement living facility.

The redevelopment will involve the demolition of the existing buildings and construction of a new facility, comprising five blocks of multi-storey units (three to six stories each), which are anticipated to be constructed in four stages.

Development in the southwest of Western Australia that involves clearing of vegetation, native and non-native, can impact of habitat required for three threatened black cockatoo species – *Zanda latirostris* (Carnaby's Black Cockatoo [CBC]), *Z. baudinii* (Baudin's Black Cockatoo) and *Calyptorhynchus banksii naso* (Forest Red-tailed Black Cockatoo [FRTBC]). All three species are protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and impacts to their habitat may require referral to the DCCEEW. To assist project proponents to determine whether their proposed activities require referral, a referral guideline has been prepared (Department of Agriculture, Water and the Environment [DAWE], 2022). Actions which trigger the following thresholds are deemed high risk of resulting in a significant impact to black cockatoos:

- Impacts to greater than 1 ha of high-quality or more than 10 ha of low-quality foraging habitat, based on the score derived from Foraging Quality Scoring Tool in DAWE (2022). Given the vegetation cover within the Site is less than 1 ha, an assessment of foraging habitat quality is not required.
- The loss of any breeding habitat i.e., known, suitable or potential nesting trees.
- The loss, or partial loss, of a known night roosting site.

The distribution of the three black cockatoos is provided in DAWE (2022). A summary of the distribution and habitat requirements of these species (based on DAWE, 2022) is presented in Table 1. Baudin's Black Cockatoo is not considered to commonly occur on the Swan Coastal Plain (SCP) and unlikely to be observed near Shenton Park, and as such, is not considered any further. The survey area is in the non-breeding range for CBC and in the distribution range for FRTBC (DAWE, 2022).

TABLE 1: HABITAT REQUIREMENTS FOR THE THREE THREATENED BLACK COCKATOO SPECIES ON THE SWAN COASTAL PLAIN (ADAPTED FROM DAWE, 2022).

SPECIES	BREEDING HABITAT	ROOSTING HABITAT	FORAGING HABITAT
Carnaby's	Unlikely to occur in the section of the Swan Coastal Plain in which the survey area is located.	In or near riparian environments or natural or artificial permanent water sources. Any tall trees may provide roosting habitat, but particularly Flat-topped Yate, Salmon Gum, Wandoo, Marri, Karri, Blackbutt, Tuart, introduced eucalypts and pines.	Native shrubland, kwongan, heathland and woodland on seeds, flowers and nectar of native proteaceous plant species as well as *Callistemon* spp. and Marri. Will also eat the seeds of introduced species such as *Pinus* spp. macadamia, insect larvae and occasionally apples and persimmons.

TABLE 1: HABITAT REQUIREMENTS FOR THE THREE THREATENED BLACK COCKATOO SPECIES ON THE SWAN COASTAL PLAIN (ADAPTED FROM DAWE, 2022).

SPECIES	BREEDING HABITAT	ROOSTING HABITAT	FORAGING HABITAT
Forest Red-tailed	May occasionally breed in the metropolitan area if suitable tree species are present. Breeding habitat is typically in woodland or forest, but this species may also breed in partially cleared woodland or forest, including isolated trees. Nest in hollows in live or dead trees (many eucalypt species may provide suitable hollows) particularly Marri, Karro, Wandoo, Bullich, Blackbutt, Tuart and Jarrah.	Any tall trees may provide roosting habitat, but particularly tall Jarrah, Marri, Blackbutt, Tuart and introduced eucalypt trees or large trees on the edges of forests.	Feeds primarily on seeds of Jarrah and Marri in woodlands and forest, and edges of Karri forests, including Wandoo and Blackbutt. Other eucalypt species, including River Red Gum and Lem-scented Gum, as well as Cape Lilac.
Baudin's	This species is not active in the northern and western sections of the SCP.		

In the environmental due diligence assessment of the Site completed by Aurora in 2024, the following was noted in relation to the threatened black cockatoo species:

- There were 3,829 sightings of black cockatoo species within a 12 km radius of the Site, of which 3,547 were of Carnaby's Black Cockatoo. There were 2,489 sightings within 6 km of the Site.
- 22 White-Tailed Black Cockatoo roost locations (most likely Carnaby's as the Site is outside of the distribution of Baudin's Black Cockatoo) have been recorded within 12 km of the Site, of which 10 of these are within 6 km.
- 20 FRTBC roost locations have been recorded within 12 km of the Site, including five within 6 km.
- The nearest roost site is within the Orton Road Reserve, which is immediately to the south of the Site boundary, with an additional five within 2 km.
- Three breeding locations (all natural hollows) were identified within 6 km of the Site, two within Kings Park and one in Bold Park. It is noted that black cockatoo breeding within the Perth metropolitan region is uncommon, and likely limited to the FRTBC.
- An assessment of the Site by Paperbark Technologies identified 37 trees with a height greater than 10 m, including 21 Jarrah trees with a DBH greater than 500 mm, which is considered the size at which trees are of an age where hollows have a greater probability of forming. This assessment did not identify whether hollows were present.

Detailed information on the characteristics of tree species within the Site in the context of black cockatoos was unresolved and required addressing for Alinea to progress development of the Site. Alinea contracted Aurora to conduct a site assessment to determine whether any of the trees on the Site had hollows suitable for use by black cockatoos, to search for evidence of black cockatoo activity at the Site and, to assess whether the proposed development activities would require a referral to DCCEEW. In addition to this, an assessment of the Site to determine whether tree species present

would be considered native vegetation, as defined in the *Environmental Protection Act 1986* (EP Act) was also completed.

2 SURVEY AREA

The Site is located on Lot 47 of Deposited Plan 418865 (Volume 2988 Folio 998), which is on the corner of Orton Road and Selby Street, Shenton Park (Figure 1), located approximately 5 km west of the Perth Central Business District in the Local Government Area of the City of Nedlands. The Site covers 1.9099 ha, comprised of a combination of buildings, paths, parking areas and gardens containing a mix of tree and shrub species over grass.

3 METHODS

The assessment of potential black cockatoo habitat trees at Lot 47 Orton Road was undertaken by Brett Neasham, Principal Ecologist at Aurora Environmental on 28 August 2024. Brett has more than 15 years of experience as an ecologist, with relevant project experience in assessing native vegetation for black cockatoo habitat value. The site assessment was conducted to collect data to determine the presence of potential or actual habitat trees for black cockatoos consistent with the requirements of DAWE (2022). The site assessment focused on the following:

- The measurement of tree DBH. Trees of *Eucalyptus* spp. and *Corymbia* spp. with a DBH greater than 500 mm are considered to be potential habitat trees for black cockatoos, as these are the most likely to form suitable hollows in the future or reach a size that supports night roosting.
- An assessment of all *Eucalyptus* spp. and *Corymbia* spp. to determine the retention value of these trees, with specific reference to the potential that trees present. To assist with this, the criteria in Table 2 was applied.

TABLE 2: TREE RETENTION CRITERIA

CLASS	TREE CHARACTERISTICS
High	These are local native species with a DBH greater than 500 mm and an assessment from an ecologist and an arborist that the tree has high retention value.
Moderate	These are local native species with an assessment from an ecologist and/or an arborist identifying the tree has moderate retention value OR was assessed as having a high value by either an ecologist or an arborist and a lower retention value by the other assessor (i.e., a high value by the arborist and a low value from the ecologist).
Low	These are Australian native tree species that are considered alien by the Western Australian Herbarium OR these are local species that have either a growth habit (trunk growing at angle to ground) and/or a DBH substantially below 500 mm and/or were assessed by an ecologist and/or arborist as having low retention value due to the health of the tree.

4 RESULTS AND DISCUSSION

4.1 Black Cockatoo Habitat

There were a total of 43 trees identified within the survey area that were considered to meet the broad definition of potential habitat for CBC or the FRTBC, of which 32 were Jarrah, a local native species (Table 3, Figure 2). The remaining trees were all considered to be alien taxa (denoted with an *), with one species known to occur naturally in WA but not in this region, while the other three were Australian species with distributions outside of WA.

The extent of vegetation cover of species that may be suitable for foraging by black cockatoos was less estimated to be 0.5 ha, which is below the minimum 1 ha threshold required for the Foraging Quality Scoring Tool (DAWE, 2022) and also below the threshold for referral to DCCEEW.

TABLE 3: SUMMARY OF POTENTIAL HABITAT TREES WITHIN THE SITE

SPECIES	COMMON NAME	DISTRIBUTION IN RELATION TO SURVEY AREA	COUNT
**Corymbia citriodora*	Lemon-Scented Gum	Weed species, only present in area due to streetscape planting.	5
**Eucalyptus botryoides*	Southern Mahogany	Weed species.	1
**Eucalyptus camaldulensis*	River Red Gum	WA species but considered to be a weed outside of its normal distribution, which does not include the survey area.	2
**Eucalyptus globulus*	Tasmanian Blue Gum	Weed species.	3
Eucalyptus marginata	Jarrah	Known to occur in the area.	32
		TOTAL	**43**

4.2 Black Cockatoo Potential Roosting and Breeding Trees

There were 25 trees within the survey area that had a DBH greater than 500 mm, of which 17 trees were Jarrah (Figure 3). A summary of the trees with a DBH greater or lower than 500 mm for each species is presented in Table 4 (refer Attachment 2 for individual tree data). One Jarrah tree (Tag #95) was noted to have a hollow at a height of approximately 10 m above ground. No evidence of black cockatoo breeding, roosting or foraging activity was observed during the site assessment.

It was noted during the site assessment that many of the trees within the Site had been pruned including the removal of some larger branches. This practice will potentially reduce the formation of hollows in these trees, as the combination of an aging tree and the loss of branches is typically an important requirement for the formation of hollows. The ongoing arboricultural practices at the Site, undertaken to manage potential safety risks to people and property, greatly reduces, if not eliminates, the future capacity of these trees to develop hollows. Given the current and proposed future use of the Site, it is highly unlikely that management of trees will change, and as such, the future breeding and roosting value of these trees for black cockatoos is limited.

TABLE 4: SUMMARY OF DBH OF POTENTIAL ROOSTING AND NESTING TREES AT THE SITE

COMMON NAME	DBH < 500 MM	DBH > 500 MM
*Lemon-Scented Gum	2	3
*Southern Mahogany	1	
*River Red Gum		2
*Tasmanian Blue Gum		3
Jarrah	15	17
TOTAL	**18**	**25**

4.3 Tree Retention Assessment

Based on the application of the tree retention score in Table 2, only individual Jarrah trees were assigned scores of moderate (17 trees) and high (13 trees), with two Jarrah trees assigned the score low due to the angle of trunk growth (Table 5, Figure 4, Appendix 2). In contrast, all alien taxa were assigned a low score. It should be noted that this assessment does not serve to advocate for the removal of trees, as all the trees have some value as either habitat for black cockatoos or other fauna species, aesthetic values which contribute to local amenity and canopy cover. Rather, the retention assessment is intended to guide the process of prioritising trees for retention based on their local distribution and greater ecological connectivity to vegetation in the area.

Of the 32 Jarrah trees assigned with retention scores of moderate and high, 19 will be removed (seven high retention value and 12 moderate retention value), based on the current development envelope (Figure 5). In addition to the 19 high and moderate Jarrah trees being removed, the two low retention trees are also within the development envelope. By contrast, only one of the other low retention trees is being removed (Table 5).

TABLE 5: TREE RETENTION SCORES AND TREE REMOVAL WITHIN THE SITE

SPECIES	HIGH		MODERATE		LOW	
	TOTAL	IMPACTED	TOTAL	IMPACTED	TOTAL	IMPACTED
*Lemon-Scented Gum					5	
*Southern Mahogany					1	1
*River Red Gum					2	
*Tasmanian Blue Gum					3	
Jarrah	13	7	17	12	2	2
TOTAL	**13**		**17**		**13**	

5 NATIVE VEGETATION ASSESSMENT

Native vegetation is defined in Section 3 of the EP Act as being "*indigenous aquatic or terrestrial vegetation and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from this definition but does not include vegetation in a plantation.*"

A further clarification is provided in Section 51 of the EP Act, which relates specifically to clearing of native vegetation, which states that "*native vegetation has the meaning given in section 3(1) but does not include vegetation that was intentionally sown, planted or propagated unless –*

a. That vegetation was sown, planted or propagated as required under this Act or another written law; or

b. That vegetation is of a class declared by regulation to be included in this definition."

There are Jarrah trees on the Site that are likely to be native vegetation, as they are located in areas that do not appear to have been impacted at any stage of the development of the current assets. The extent of this appears to be limited to the northeastern area of the Site. The clearing of native

vegetation for the proposed development of the Site is likely to be covered by Regulation 5, Item 1 of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004,* pursuant to the granting of development approval by an authorised body.

6 MANAGING AND MINIMISING IMPACTS

To minimise impacts at the Site, it is recommended that as many of the Jarrah trees be retained as is practicable. The retention of alien taxa is considered a lower priority, in an ecological context. To manage the potential impacts associated with the removal of tees required for the development and to enhance the connectivity of the Site with the surrounding areas of native vegetation, it is recommended that landscaping utilises plant species that are native to the local area to remain sympathetic with the floristic and structural qualities of nearby larger remnants. Seeds for plants used in landscaping should ideally be of local provenance, as this reduces the chances for hybridisation to occur. Specialist seed collectors and nurseries provide these services. Future pruning of tree branches within the Site should be limited to that which is required to prevent potential injury to people or damage to property, as this will encourage the development of a canopy that provides a greater amount of food for black cockatoos and other species. Finally, alien taxa that are growing close to Jarrah trees, potentially impacting on their growth and development, should be removed using appropriate, targeted methods.

For and on behalf of Aurora Environmental,

Brett Neasham
Principal Ecologist

ATTACHMENTS:

1. Figures
2. Tree Data

REFERENCES

Aurora Environmental (2024). Environmental Due Diligence Assessment – 2 Orton Road, Shenton Park Western Australia. Unpublished report prepared for Alinea Incorporated.

Department of Agriculture, Water and the Environment (DAWE) (2022) Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black-cockatoo. Department of Agriculture, Water and the Environment, Canberra.

ATTACHMENT 1

Figures

0 50 100 m

Scale 1:2000 @ A4

GDA2020 / MGA zone 50

Aurora environmental
ASSESS • ADVISE • APPLY

Lot 47 Orton Road survey area

Figure 1

01/11/2024

Author: Brett Neasham

Project: ALI-PP03697

Report: ALI-PPO3697_BLCK_002_BN Ver: 01

0 25 50 m

Scale 1:1200 @ A4

GDA2020 / MGA zone 50

Aurora environmental
ASSESS • ADVISE • APPLY

Tree species with potential habitat value for Black Cockatoos within Lot 47 Orton Road

Figure 2

01/11/2024

Author: Brett Neasham

Project: ALI-PP03697

Report: ALI-PP03697_BLCK_002_BN Ver: 01

0 25 50 m

Scale 1:1200 @ A4

GDA2020 / MGA zone 50

Aurora environmental
ASSESS • ADVISE • APPLY

Trees with a DBH > 500 mm within Lot 47 Orton Road.

Figure 3

01/11/2024

Author: Brett Neasham

Project: ALI-PP03697

Report: ALI-PP03697_BLCK_002_BN Ver: 01

0 25 50 m

Scale 1:1200 @ A4

GDA2020 / MGA zone 50

Aurora environmental
ASSESS • ADVISE • APPLY

Tree retention values within Lot 47 Orton Road

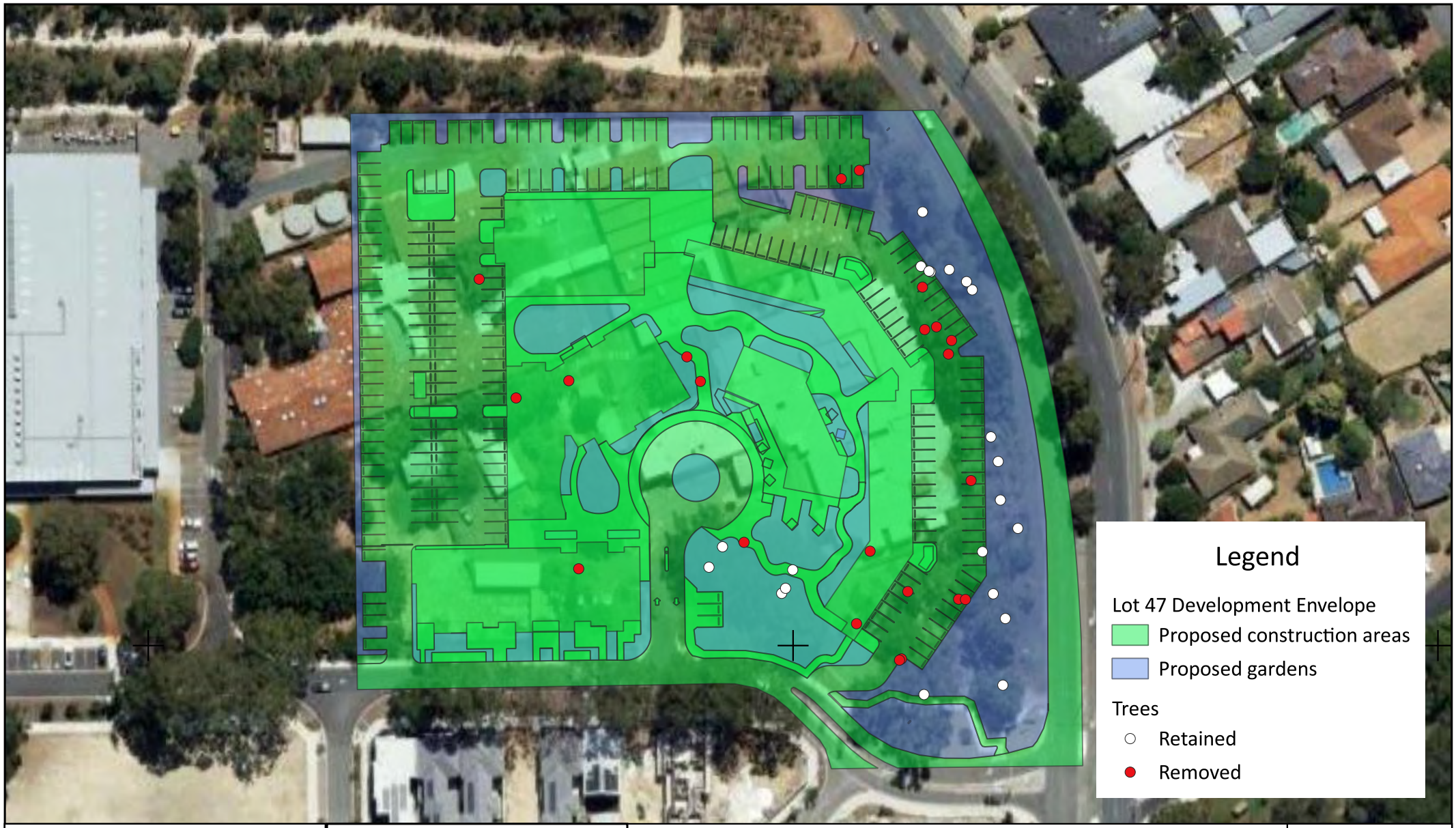
Figure 4

01/11/2024

Author: Brett Neasham

Project: ALI-PP03697

Report: ALI-PP03697_BLCK_002_BN Ver: 01



0 25 50 m

Scale 1:1200 @ A4

GDA2020 / MGA zone 50

Aurora environmental
ASSESS • ADVISE • APPLY

Trees potentially impacted by development of Lot 47 Orton Road

Figure 5

01/11/2024

Author: Brett Neasham

Project: ALI-PP03697

Report: ALI-PP03697_BLCK_002_BN Ver: 01

ATTACHMENT 2

Tree Data

Attachment 2 - Tree Data

Lot 46 Orton Road, Shenton Park

Latitude	Longitude	Tag #	Species	Status	DBH (mm)	DBH Class	Hollows	Hollow use	Retention	Project im	Notes
-31.9524711	115.8044409	1	Eucalyptus marginata	Local native	798	>500	FALSE		High	Removed	Trunk 2 - 500mm Trunk 3 - DBH below 500mm
-31.9524537	115.8044853	2	Eucalyptus marginata	Local native	309	<500	FALSE		Moderate	Removed	4 trunks, all below 500mm DBH
-31.9525425	115.8046399	4	Eucalyptus marginata	Local native	667	>500	FALSE		High	Nil	Branches trimmed, Trunk 2 - 609mm, Trunk 3 - 473mm Umbrella tree growing into branches on one side.
-31.9526565	115.8046344	5	Eucalyptus marginata	Local native	290	<500	FALSE	FALSE	Moderate	Nil	2 other trunks - DBH below 500mm
-31.9526684	115.804658	6	Eucalyptus marginata	Local native	320	<500	FALSE	FALSE	Moderate	Nil	All trunks below 500mm DBH, two trees growing close together, retention of largest tree recommended
-31.9526668	115.8046542	7	Eucalyptus marginata	Local native	451	<500	FALSE	FALSE	High	Nil	Highest retention value of three trees recorded in close proximity, single trunk and largest DBH, crown supremacy
-31.9527002	115.8046376	8	Eucalyptus marginata	Local native	421	<500	FALSE		Moderate	Removed	Secondary trunk below 500mm DBH
-31.9526641	115.804704	11	*Corymbia citriodora	Australian native	280	<500	FALSE		Low	Nil	
-31.9527071	115.80476	12	Eucalyptus marginata	Local native	613	>500	FALSE		High	Nil	Ficus growing in the middle. Possible hollow, about 15m off ground. Secondary trunk 346mm DBH
-31.9526898	115.8047462	13	Eucalyptus marginata	Local native	567	>500	FALSE		High	Nil	Branches trimmed, non-native trees crowding base
-31.952784	115.8046709	15	*Eucalyptus botryoides	Australian native	354	<500	FALSE		Low	Removed	
-31.9527894	115.804642	16	Eucalyptus marginata	Local native	725	>500	FALSE		High	Removed	Trunk splits into two at around 3 m, both secondary trunks appear over 500 mm, highest rentention value
-31.9528128	115.8047078	17	Eucalyptus marginata	Local native	419	<500	FALSE		Low	Removed	Trunks growing at 45 degrees from ground, not suitable for BC hollows
-31.9528413	115.8046997	18	Eucalyptus marginata	Local native	352	<500	FALSE		Low	Removed	Being overtaken by fig tree
-31.9530161	115.804802	20	*Corymbia citriodora	Australian native	519	>500	FALSE		Low	Nil	
-31.9530678	115.8048192	21	Eucalyptus marginata	Local native	539	>500	FALSE		Moderate	Nil	Second trunk <500mm Separate tree, Jarrah, <500 mm, low retention value
-31.9531488	115.8048236	22	Eucalyptus marginata	Local native	220	<500	FALSE		Moderate	Nil	
-31.9531072	115.8047519	23	Eucalyptus marginata	Local native	515	>500	FALSE		Moderate	Removed	Trunks at an angle, lower retention value
-31.9532568	115.804778	25	*Eucalyptus globulus	Australian native	730	>500	FALSE	FALSE	Low	Nil	
-31.9532086	115.8048658	26	*Corymbia citriodora	Australian native	871	>500	FALSE		Low	Nil	
-31.9533975	115.8048326	27	*Corymbia citriodora	Australian native	685	>500	FALSE		Low	Nil	
-31.9533453	115.8048033	29	*Corymbia citriodora	Australian native	360	<500	FALSE		Low	Nil	
-31.9533559	115.8047181	31	Eucalyptus marginata	Local native	432	<500	FALSE		Moderate	Removed	
-31.9534798	115.8045758	37	Eucalyptus marginata	Local native	433	<500	FALSE		Moderate	Removed	Second trunk < 500 mm
-31.9534823	115.804571	38	Eucalyptus marginata	Local native	459	<500	FALSE		Moderate	Removed	
-31.953405	115.8044662	40	Eucalyptus marginata	Local native	438	<500	FALSE		Moderate	Removed	
-31.9533395	115.8042828	45	*Eucalyptus camaldulensis	WA native	721	>500	FALSE		Low	Nil	
-31.9532905	115.8043107	46	*Eucalyptus camaldulensis	WA native	785	>500	FALSE	FALSE	Low	Nil	
-31.953329	115.8042925	47	*Eucalyptus globulus	Australian native	660	>500	FALSE		Low	Nil	
-31.9532316	115.8041916	56	Eucalyptus marginata	Local native	485	<500	FALSE		Moderate	Removed	
-31.9532404	115.8041385	57	Eucalyptus marginata	Local native	641	>500	FALSE		High	Nil	Second trunk 533 mm
-31.9532829	115.8041046	58	*Eucalyptus globulus	Australian native	809	>500	FALSE	FALSE	Low	Nil	
-31.9532832	115.803784	60	Eucalyptus marginata	Local native	708	>500	FALSE		Moderate	Removed	Second trunk 530 mm
-31.9529234	115.8036346	92	Eucalyptus marginata	Local native	668	>500	FALSE		High	Removed	
-31.9528884	115.8037648	93	Eucalyptus marginata	Local native	687	>500	FALSE		High	Removed	
-31.952841	115.804056	95	Eucalyptus marginata	Local native	782	>500	TRUE	FALSE	High	Removed	Second trunk 758 mm

Attachment 2 - Tree Data
Lot 46 Orton Road, Shenton Park

Latitude	Longitude	Tag #	Species	Status	DBH (mm)	DBH Class	Hollows	Hollow use	Retention	Project im	Notes
-31.9528929	115.8040886	96	Eucalyptus marginata	Local native	535	>500	FALSE		High	Removed	Second trunk 440 mm
-31.9526732	115.803547	98	Eucalyptus marginata	Local native	779	>500	FALSE		High	Removed	Branches trimmed
-31.9532531	115.8045015	107	Eucalyptus marginata	Local native	479	<500	FALSE		Moderate	Removed	
-31.9533387	115.8045932	108	Eucalyptus marginata	Local native	502	>500	FALSE		Moderate	Removed	
-31.9535551	115.8046303	201	Eucalyptus marginata	Local native	813	>500	FALSE		High	Nil	Second trunk 529 mm
-31.9535373	115.8048246	211	Eucalyptus marginata	Local native	749	>500	FALSE		Moderate	Nil	Not in original set, moderate retention value due to trunk agnle, second trunk 374 mm
-31.9533566	115.8047349	311	Eucalyptus marginata	Local native	459	<500	FALSE		Moderate	Removed	

Lot 47 (No. 2)
Orton Road
Precinct Structure Plan
June 2025 | 23-210

element. | PART OF SLR
Level 1, 500 Hay Street. Subiaco WA 6008
T. (08) 9289 8300 – **E.** hello@elementadvisory.com.au
elementadvisory.com.au