

ROOFING 2000

91 - 93 CANNING HWY

LANDSCAPE

DEVELOPMENT APPLICATION
DECEMBER 2021

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Introduction

The landscape design for the 91 Canning Highway project in East Fremantle, has been prepared by ASPECT Studios in collaboration with Space Agency Architects. The design responds to the scale, form and function of the architecture and local context in order to create a generous and attractive landscape and public realm.

The project sits at the intersection of the Derbal Yaragan (Swan River) and ecological corridors, historic transport links, bike paths and local communities. The project embraces its location at the crossroads of the local context and the landscape has been organised to create new links and public open spaces that enhance the local area.

The public landscape spaces provide a much-needed public open space contribution to the Town of East Fremantle and have been designed to meet the needs of residents, visitors and the broader community.

The landscape will retain and integrate the landmark *Ficus microcarpa* var. *hillii* (Hills Weeping Fig tree) together with a number of *Eucalyptus* trees and deliver new deep soil areas to support additional tree canopy to create a shaded parkland environment and contribute to the Town of East Fremantle's canopy coverage initiatives.

The following general principles form the landscape approach to the site:

- Use high quality landscape design to integrate the proposed development with the surrounding streets and neighbourhood;
- Develop a legible network of spaces that fully integrate with and connect to the surrounding context;
- Engage with the local pedestrian and cycle networks
- Ensure that communal open spaces have access to sun light whilst also providing adequate shade and wind protection.
- Maximise opportunities for social interaction and support the retail offering through the arrangement of alfresco areas, seating and views.
- Create a robust landscape made from elegant materials, proven planting and bold forms that can be managed and maintained.
- Use local and native plant species that benefit surrounding ecologies.
- Include mature and retained tree planting throughout the site to contribute the Town of East Fremantle's canopy coverage initiatives
- Create large continuous areas of deep soil around the perimeter of the site to allow for significant trees to grow along the boundary.

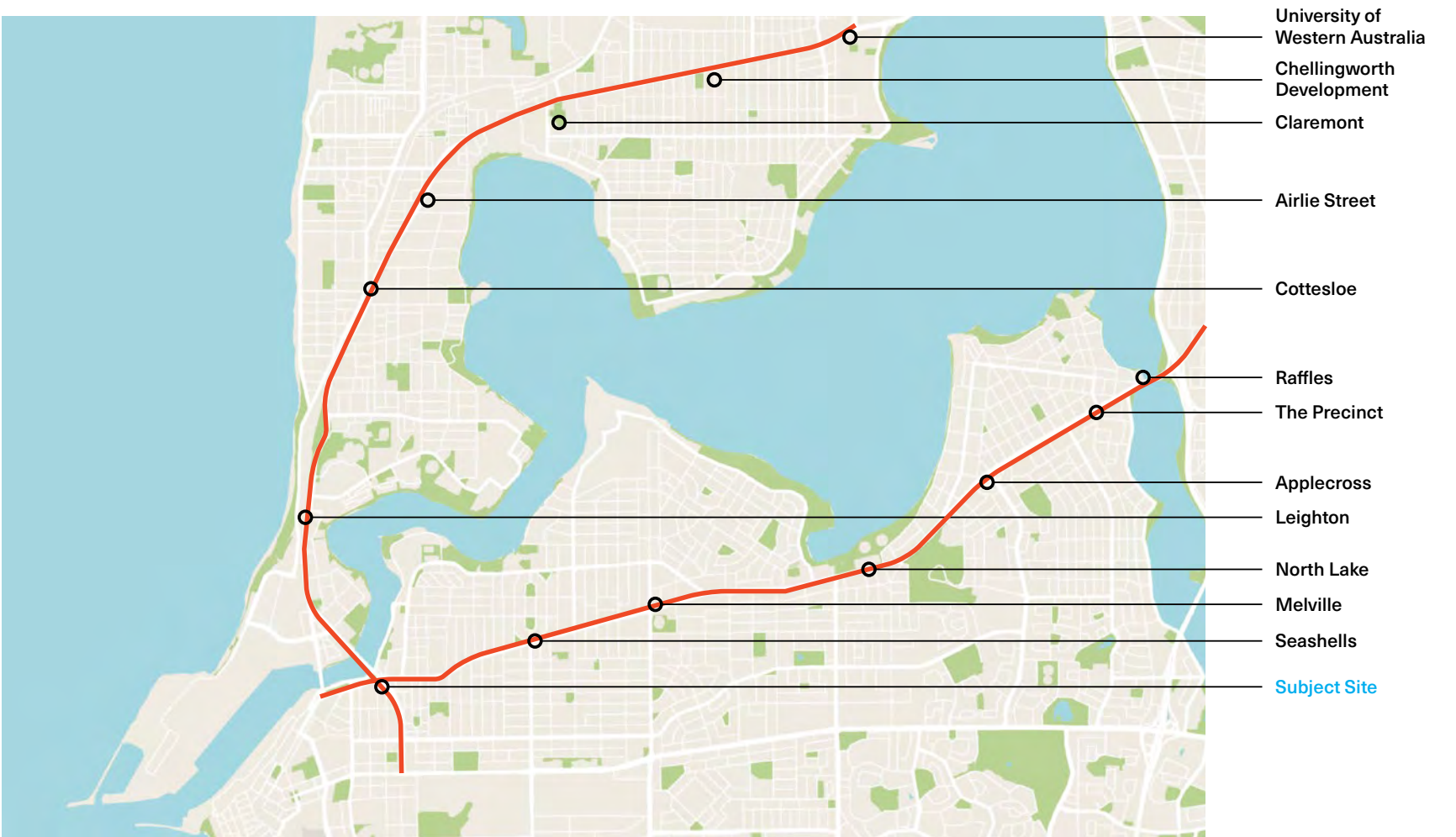
The design of landscape considers the architectural design by Space Agency in both concept and materiality, with the intention of creating a cohesive transition from internal to external spaces.



01. Context

1.1 Urban Context

The Site is located at the intersection of Stirling Highway and Canning Highway at the entrance to Fremantle. It is a continuation of a legacy of significant developments along the highways, river front and town centres that connect Perth and Fremantle. Many of these key developments have had landscape gardens as part of their development which have supported the needs of the local and wider community. This proposal continues that legacy.



Brighton Hotel 1895



Halfway House 1880s/ Albion Hotel



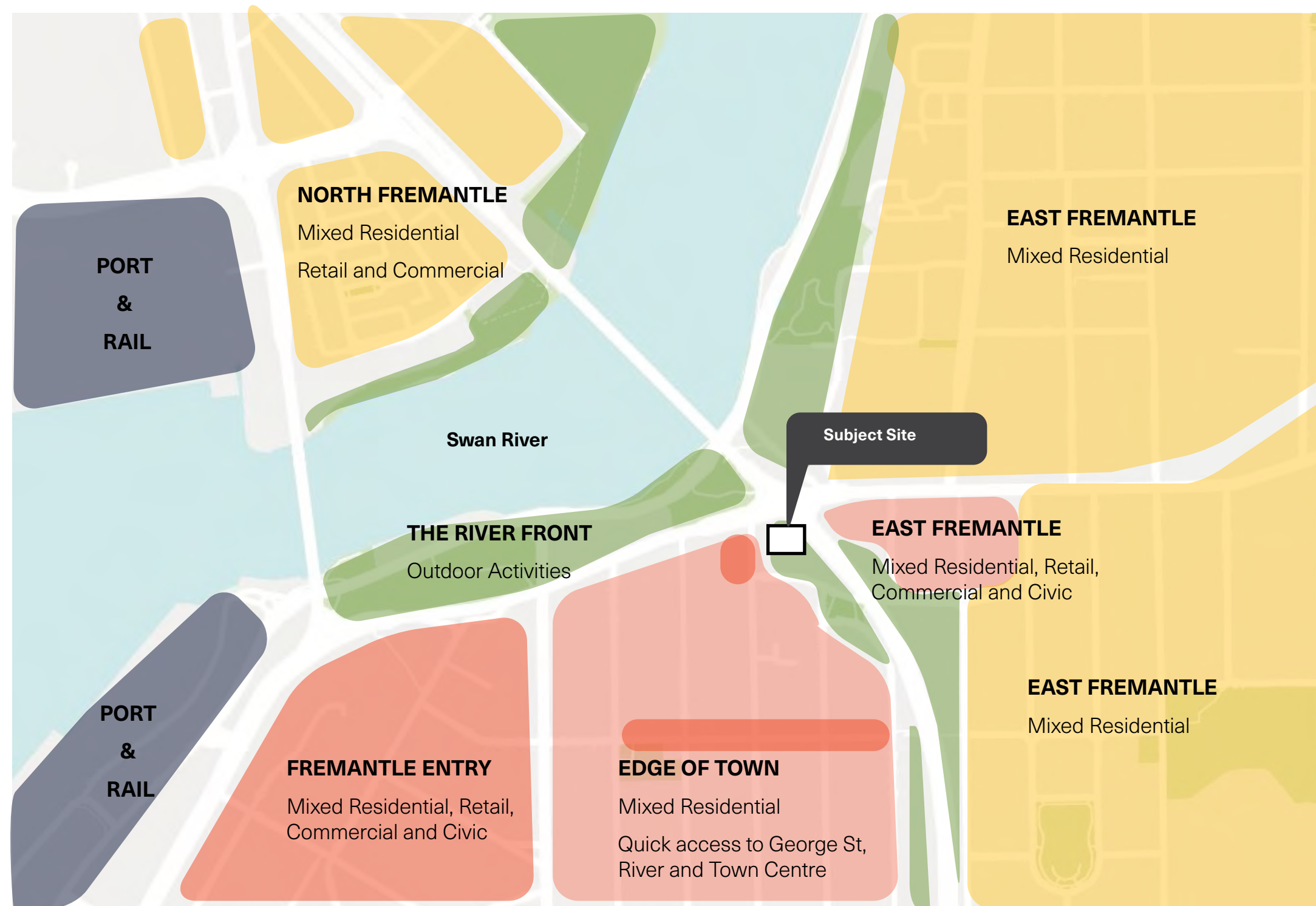
Castlemaine Brewery 1896



Osbourne Hotel 1895

1.2 Neighbourhood Context

The site is surrounded by a number of character areas that represent a mix of single and multi residential properties, iconic pubs, retail areas and civic buildings. The landscape design looks to embrace elements of these surrounding character areas and create a landscape that is connected and contextually appropriate.



An intersection of local character zones

1.3 Landscape Context

The landscape character of East Fremantle consists of an eclectic mix of native bushland, limestone and river environments. The area is defined by moments and places where the city, limestone and bushland meet the water. The local landscape and geology provides a rich myriad of textures, colours and forms that together create a uniquely East Fremantle character and backdrop.



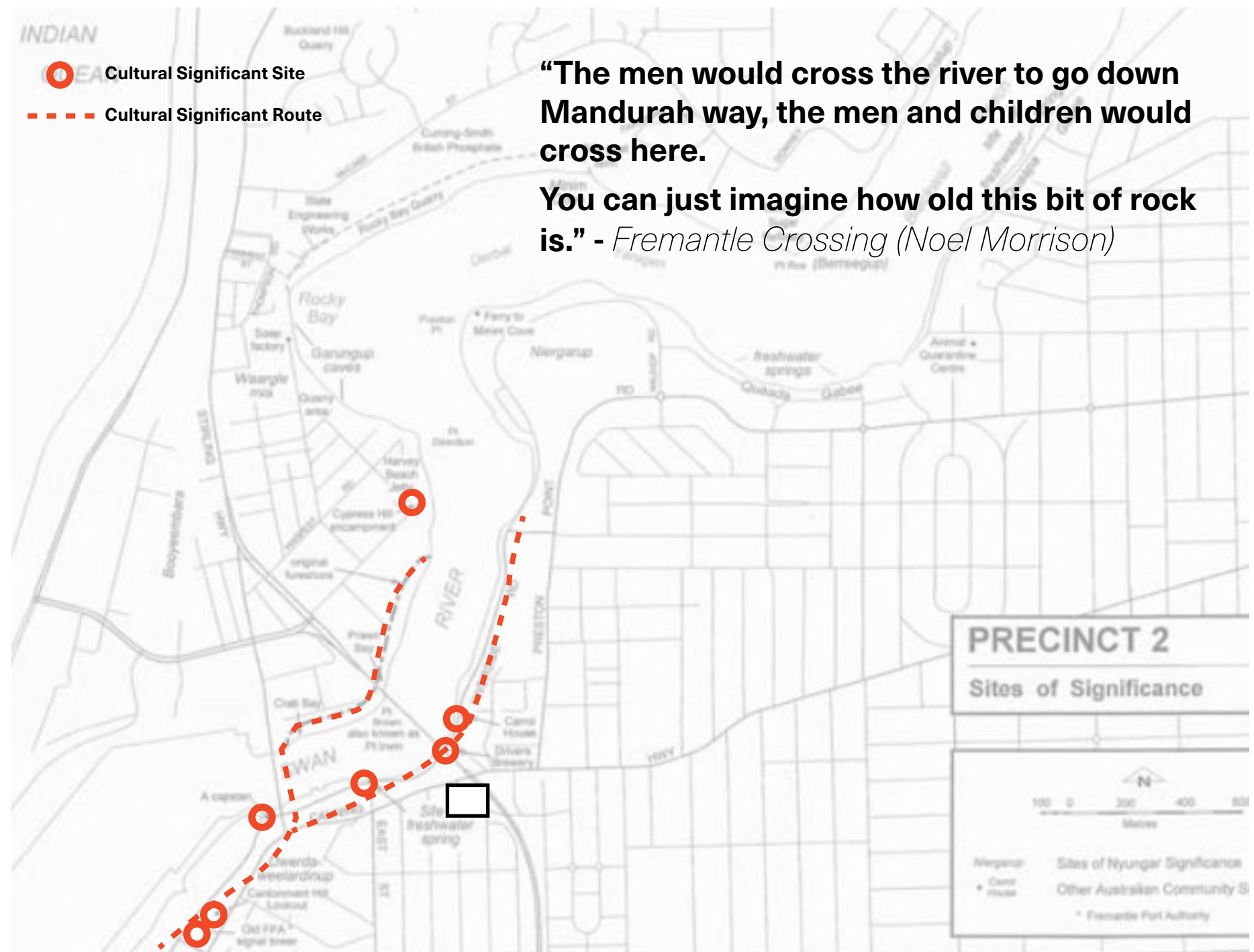
1.4 Cultural Context

Cultural Significance

This precinct is part of the Mooro district, which at the time of the establishment of the Swan River Colony was the boodjar or land of Yellagonga. This area was bounded by the sea on the west, by Melville Water and the Swan on the south, by Ellen Brook on the east and by Moore River (Gyngoorda) to the north. Before colonisation, the area was abundant in food, shelter materials and water. There was an important route from the Perth area along the north bank to North Fremantle.

It continues to be a location favoured by Nyoongars. At North Fremantle, the water was shallow enough to swim across to the southern bank where the route continued south to Bibra Lake, Rockingham, Mandurah (place of trade and exchange) and the Murray River. Point Preston is known as Niergarup to local Nyoongar. This means 'the place where the pelican are located'. Beeliar people used this area as a ceremonial and camping ground. The whole area is known as an 'Important Place'. It was the first sighting area of white people, exploring the river. (City of Melville, Aboriginal History)

[-parks.dpaw.wa.gov.au/sites/default/files/downloads/parks/Indigenous%20history%20of%20the%20Swan%20and%20Canning%20rivers.pdf](https://parks.dpaw.wa.gov.au/sites/default/files/downloads/parks/Indigenous%20history%20of%20the%20Swan%20and%20Canning%20rivers.pdf)



1.3 Landscape Context

Public Open Space Analysis

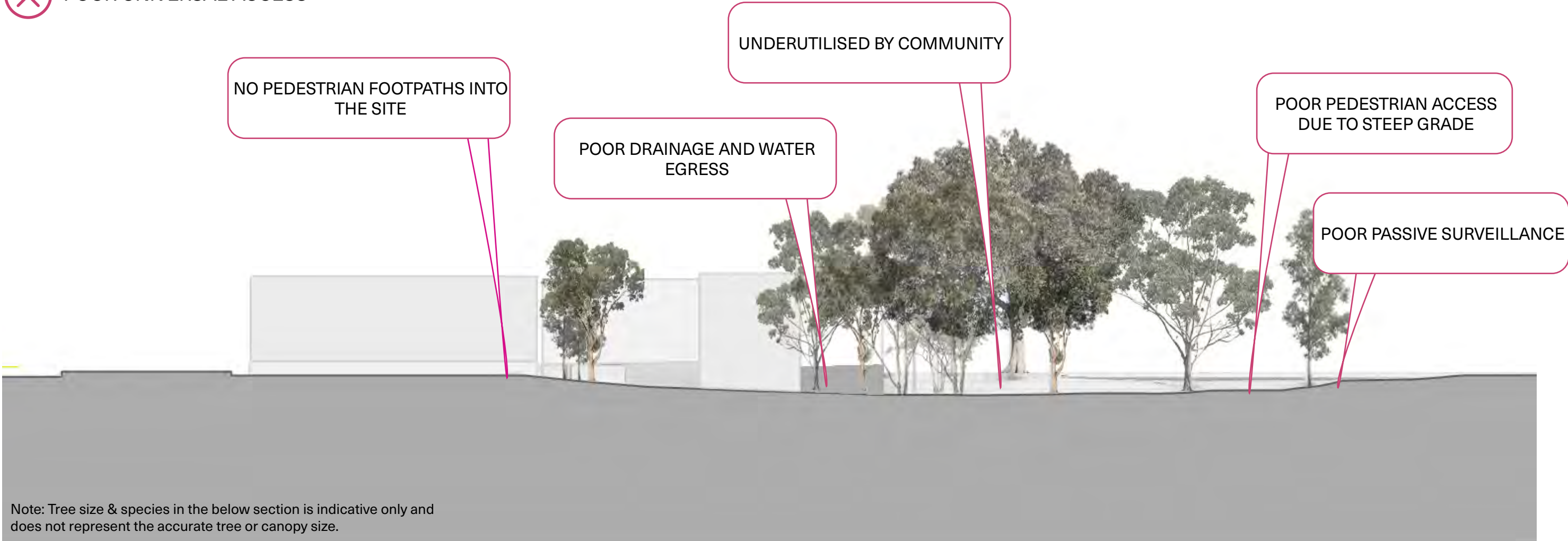
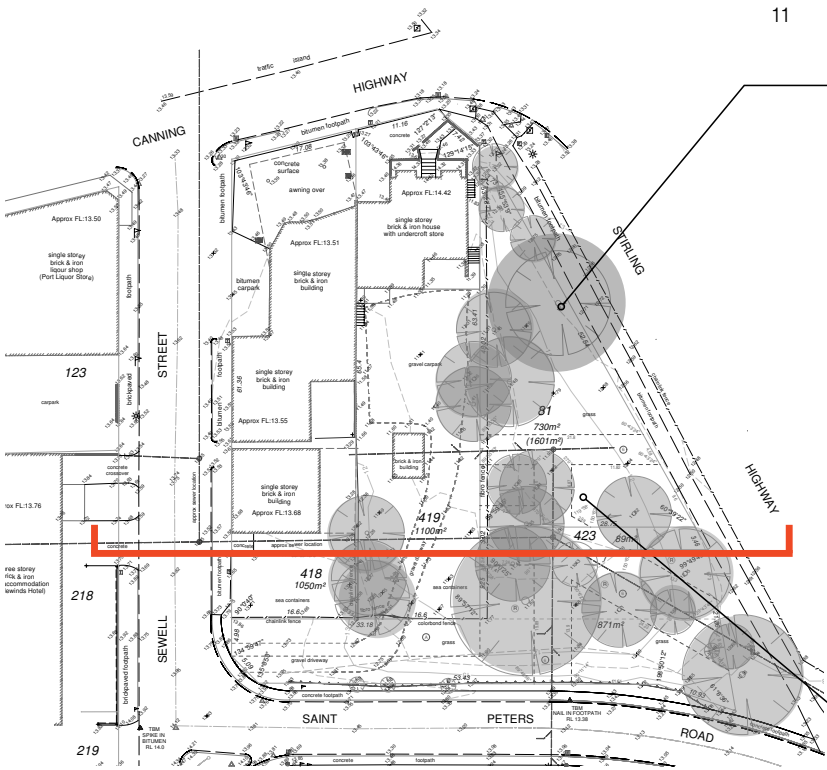
The adjacent diagrams highlights public open space within a 1km radius of the site. It identifies a number of passive open spaces with limited amenity and shade. Many of these spaces are difficult for the local community to access as they are across major roads or the river. The creation of additional public open space within this the project site will benefit residents and the local community.



02. Site Appreciation

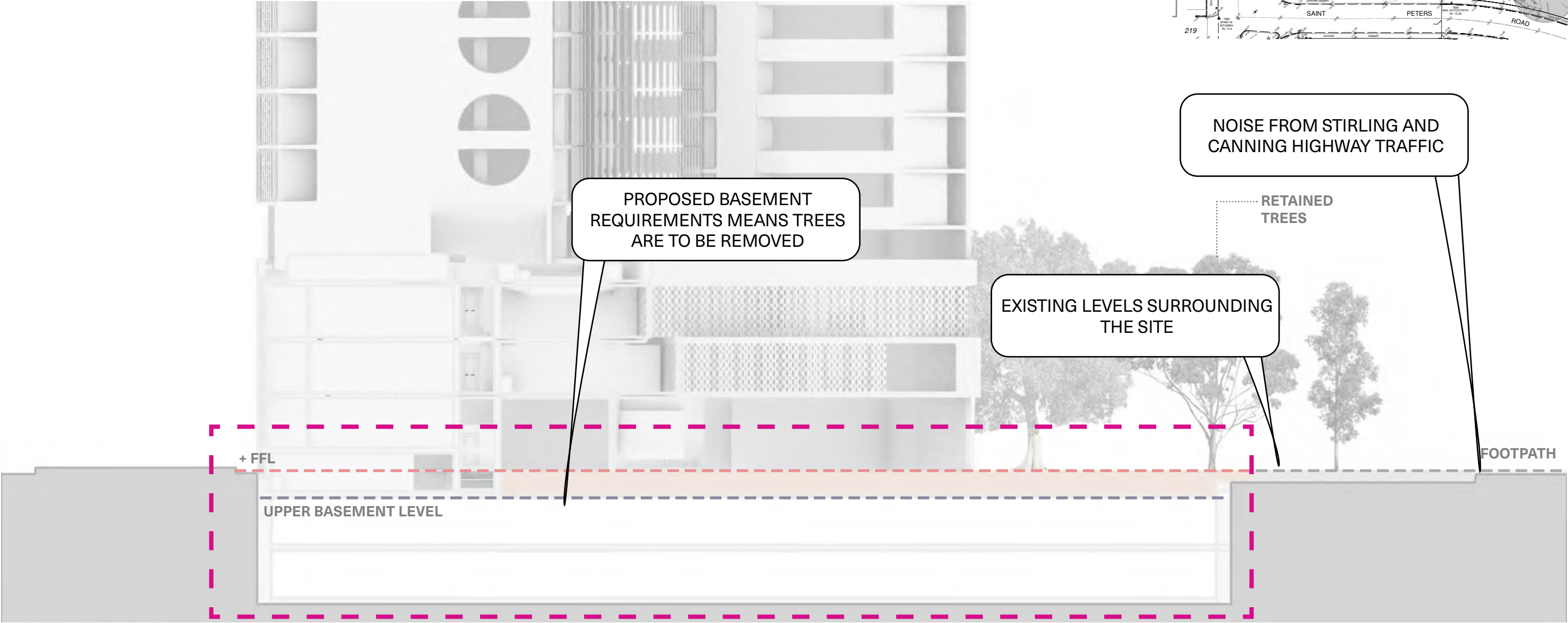
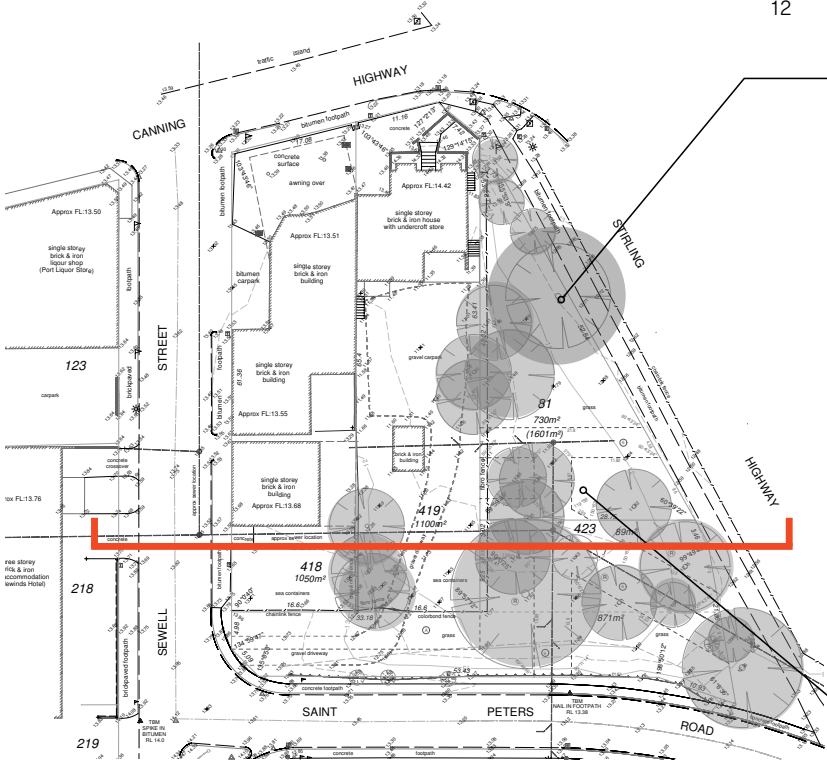
2.1 Existing Site Constraints

- ✗ UNDERUTILIZED BY THE COMMUNITY
- ✗ POOR PASSIVE SURVEILLANCE DUE TO SLOPED SITE BEING DIFFICULT TO VIEW INTO
- ✗ POOR DRAINAGE AND WATER EGRESS
- ✗ POOR UNIVERSAL ACCESS



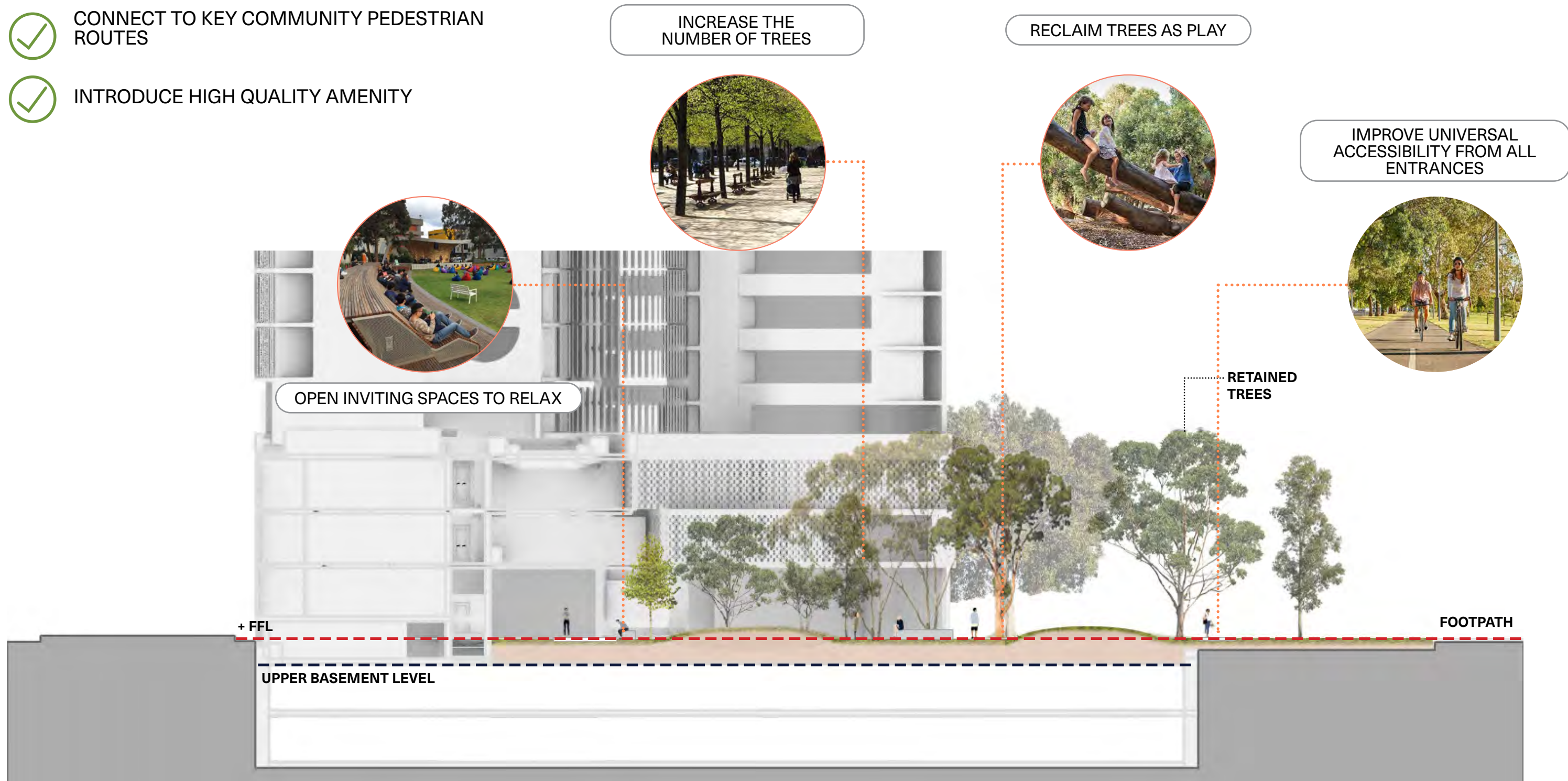
2.2 Existing Site Considerations

- BASEMENT ALIGNMENT
- NOISE FROM THE HIGHWAY
- LEVELS SURROUNDING THE SITE



2.2 Existing Site Opportunities

- ✓ INCREASED TREE PLANTING AND BIODIVERSITY
- ✓ CONNECT TO KEY COMMUNITY PEDESTRIAN ROUTES
- ✓ INTRODUCE HIGH QUALITY AMENITY



03. LANDSCAPE APPROACH

3.1 Landscape Strategy



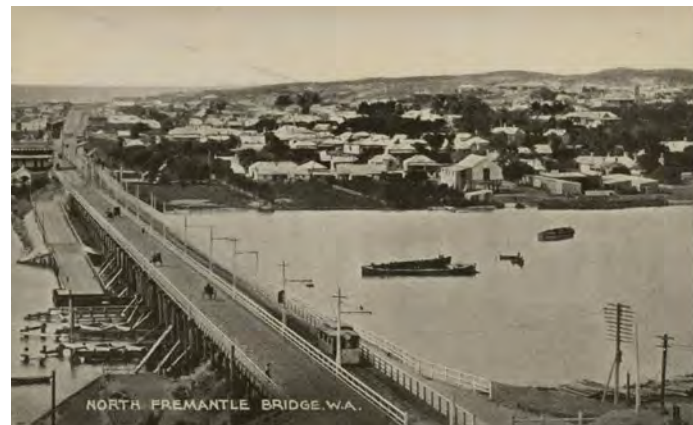
Create new connections



Enhance the local landscape character

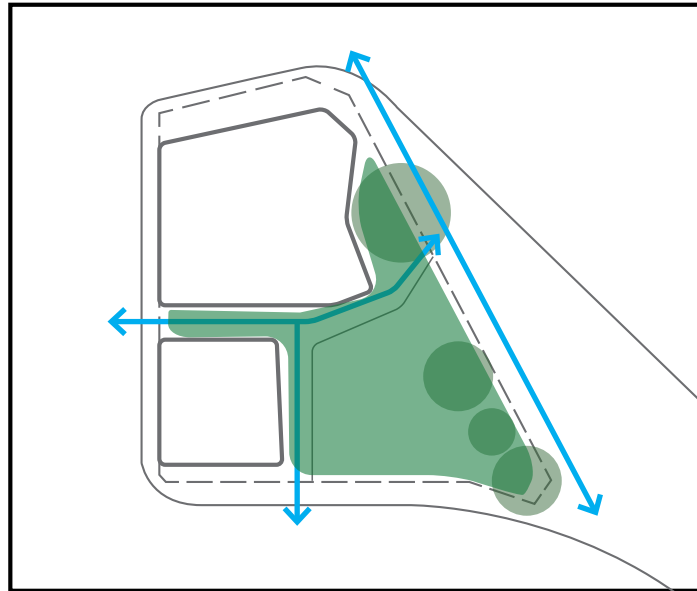


Create a meeting Place



3.2 Landscape Drivers

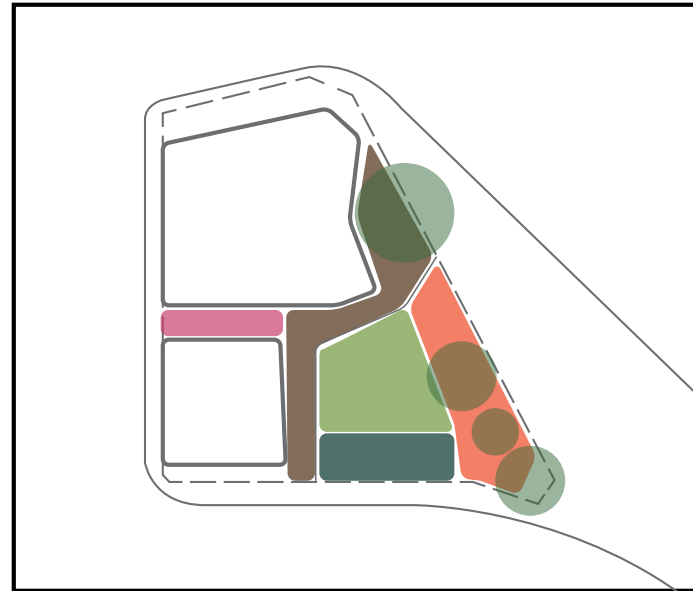
Public Space



Create a new highly connected public space in the Plympton neighborhood.



Amenity



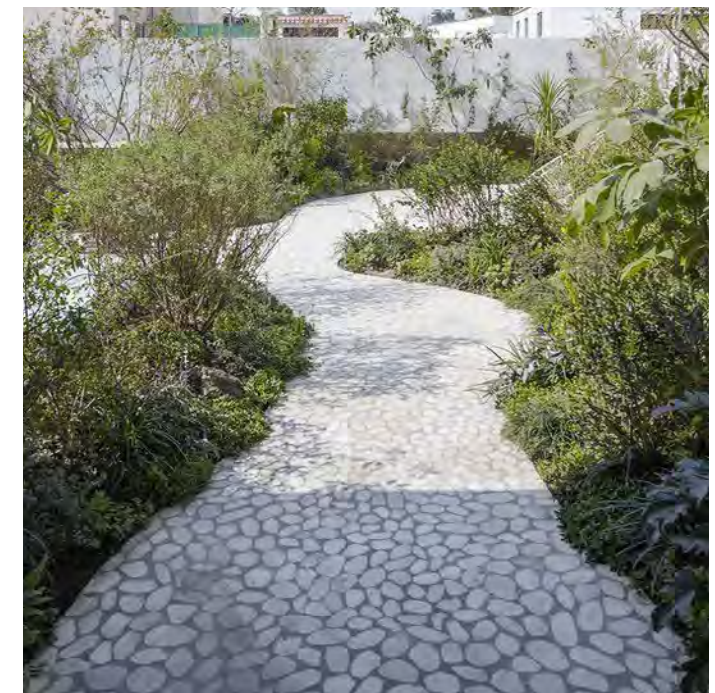
Create new amenity for a range of users.



Ecology



Build a resilient and bio-diverse green network.



04. LANDSCAPE PLANS

4.1 Landscape Plan

The landscape open spaces have been designed as a series of parkland, garden and amenity spaces that respond to the adjacent streetscape and provide a highly connected and amenity rich landscape.

The design responds to local community needs through the provision of a much-needed informal leisure spaces with open grassed areas, gardens and informal play areas to support recreation and associated activities.

The POS creates a public space that encourages interaction between residents, visitors and the wider community.



4.2 Landscape Plan





4.3 Access & Alfresco Areas

LEGEND	
1	Paved Pedestrian Entrance
2	Seating
3	Alfresco Area
4	Pedestrian/ Cyclist Access
5	Cycle parking and Repairs
6	Retained Tree
7	Access to Sewell St

Reference Images



4.4 The Gardens

LEGEND	
1	Lawn
2	Garden Beds
3	Seating Edge
4	Tree Planting

Reference Images



4.5 The Embankment

LEGEND	
1	Planted limestone embankment
2	Existing trees retained
3	Informal nature based play
4	Cycle path with concrete skate feature
5	Gardens

Reference Images

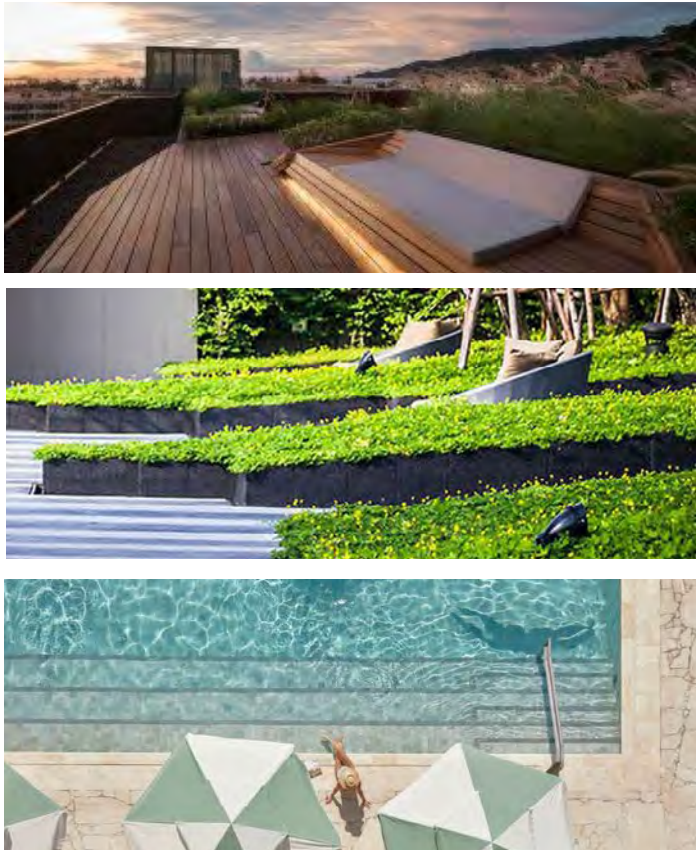




4.6 Podium

LEGEND	
1	Planting Bed
2	Sun lounges
3	Seating Areas
4	Dining Area
5	Pool Entrance
6	Fire Pit

Reference Images





4.7 Level 10

LEGEND

1

Mounded planting bed with boulders



4.9 Level 12

LEGEND	
1	Seating area
2	Mounded planting beds
3	Services room

Reference Images



05. LANDSCAPE QUALITY

5.1 Landscape Materials

Materials Strategy

A refined palette of robust and low maintenance materials are proposed that are in keeping with the project context and Architecture. The proposed landscape scheme will use a palette of high quality materials, selected to reinforce the identity of the spaces.

Materials have been selected that are sympathetic to the local context and are appropriate to their location and use. The materials detailed here form a structured palette that are coordinated to create visual unity and integrity within the landscape and with the adjoining local character.

The Material strategy will:

- Use materials that are sympathetic to the local context and are appropriate to their location and use.
- Form a structured palette that is coordinated to create visual unity and integrity within the landscape but allow for variations in texture and colour that can be used to define function and character.
- Give consideration to long-term performance, durability and maintenance requirements.
- Consider impact on the environment and sourcing, cost and project sustainability.



Unit Paving



Timber Decking



Bonded Crushed Gravel

Furniture Strategy

The fixed furniture elements are designed and organised to work with the loose alfresco furniture and encourage a broad range of social interactions. A series of generously dimensioned furniture elements are placed strategically at key locations to distinguish the site as a welcoming and social place.

The furniture strategy will:

- Reinforce the overall design concept and relationship to the architecture.
- Provide a range of fix and loose furniture that caters to large and small groups.
- Share a common material language and robust detailing.
- Locate furniture in favourable climatic zones. i.e. wind protected areas with suitable solar access
- Restrained selection of materials to be robust, vandal resistant and durable.



Stone Seating



Timber Seating



Concrete Seating Edge



Limestone Elements

5.2 Planting Strategy

Planting Strategy

The planting scheme for the project is designed to add a strong well-vegetated character to the site. Landscape will be used to create identity through a series of 'garden rooms' and maximise amenity for the building occupants and the broader neighbourhood.

The ground floor will feature lush native and endemic planting that represent an eclectic mix of local species together with robust plant species selected to meet the requirements of the public realm design. Planting with perimeter feature trees will structure and define the green edge of the public space, creating seasonal colour and managing solar access. A diverse selection of sun and shade tolerant endemic, native and exotic species, have been proposed that will be robust and water-wise and well suited to this aspect.

Low to mid-level planting on upper levels will provide a lush green outlook. Plant selection include local and native species that can tolerate the exposure and micro-climatic conditions of the upper levels.

The planting is intended to:

- Use plants representative of the Cottesloe and Karrakatta Vegetation Complexes.
- Use water wise design principles and implement hydro-zoning.
- Use plants that can adapt to as well as create pleasant micro-climates.
- Create attractive high-quality planting compositions to promote comfortable, enjoyable environments.
- On upper levels, clearly define and frame each terrace, while maintaining the outlook to greater coastal area
- Enhance ecological diversity.
- Incorporate soil volume and profile to promote good plant growth within the constraints of the site.
- Reduced temperatures of external areas.
- Have low maintenance requirements and longevity.

Water Efficient Irrigation System

Trees and plants will be irrigated by a water efficient irrigation system. The irrigation water demand volumes will not be excessive, however, a constant and uninterrupted supply must be maintained especially during dry and hot periods.

Where possible, plants will be hydro- zoned according to water requirements. This allows the reticulation to the endemic plantings to be separately controlled and greatly reduced following their establishment period.

The automated irrigation system can be designed to include monitors to detect malfunctions so that rapid response rectification can be programmed before the planting is detrimentally affected by a disruption to water supply.

- A holistic irrigation strategy will be prepared for the project that aims to include the following initiatives:
- Aqua monitoring to record and display water usage
- Hydro-zoning of plants
- Waterwise planting and use of local species
- High quality and improved soils with good moisture and nutrient holding capacity
- Organic mulch
- Rain sensors
- Soil Moisture Sensors
- Evapotranspiration Sensors



5.3 Planting Palette

Indicative Shrubs and Groundcover Planting



- Shrubs**
- Acacia lasiocarpa*
 - Adenanthos sericeus* (4)
 - Agonis flexuosa* 'nana'
 - Correa backhouseana* (2)
 - Grevillea* 'Moonlight'
 - Correa alba* (8)
 - E. pulverulenta* (clipped) (1)
 - Grevillea* 'Moonlight'
 - Lavandula angustifolia*
 - Limonium perezii* (3)
 - Melaleuca huegelii*
 - Olearia axillaris* (7)
 - Rhaphiolepis hybrid* Oriental Pearl (5)
 - Rosmarinus officinalis*
 - Syzigium australe*
 - Westringia fruticosa* 'Jervis Gem' (6)

- Groundcovers/Strappy/Grasses**
- Acaica cognata* 'Limelight' (7)
 - Conostylus aculeata*
 - Conostylus candicans* (1)
 - Casuarina glauca* 'Cousin It'
 - Banksia blenchifolia*
 - Dianella revoluta*
 - Dicondra* 'Silver Falls'
 - Dicondra repens*
 - Eremophila glabra*
 - Ficinia nodosa* (5)
 - Hibbertia scandens* (3)
 - Juncus Kraussii* (8)
 - Leucophyta brownii* (dwarf)
 - Lomandra* 'Seascape' (4)
 - Myoporum parvifolium* (6)
 - Phormium tenax*
 - Trachelospermum jasminoides* (2)

5.4 Planting Palette

Indicative Tree Planting

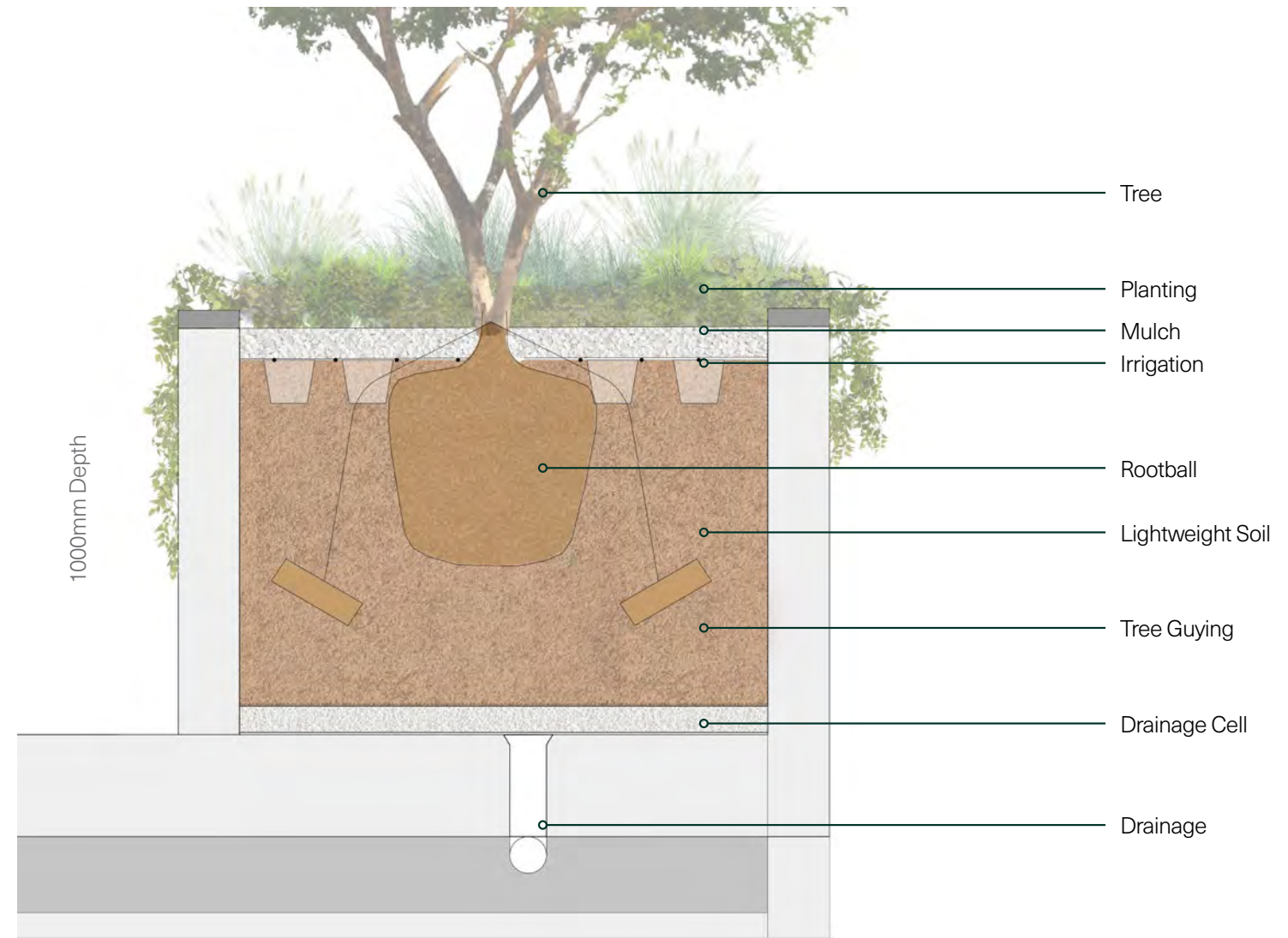


- Ground Floor**
Eucalyptus caesia (5)
Eucalyptus platypus (2)
Eucalyptus torquata
Eucalyptus victrix (3)
Gleditsia tricanthos(1)
Ulmus parvifolia (4)
Eucalyptus camaldulensis var. *camadulensis* (6)
Corymbia calophylla
- Podium**
Dracena draco
Ficus benjamina
Plumeria sp
Ulmus parvifolia (4)

5.5 Planting on Structure

The planting scheme for the project is designed to add a strong well-vegetated character to the site. Landscape will be used to create identity through a series of 'garden rooms' and maximise amenity for the building occupants and the broader neighbourhood.

This will include planting on structure at one metre depths to meet the requirements of Design WA. The planting areas will include engineered drainage, irrigation and soil systems to support healthy tree and shrub planting.



Indicative planting on structure detail



5.6 Operation, Irrigation & Maintenance

Appropriate landscape management and maintenance is vital to the success of the landscape design and as such consideration has been given easy operation and ongoing maintenance.

Maintenance Considerations

Repair and Maintenance

The need for repair and replacement of planting and finishes will be mitigated by the use of appropriate and durable species and materials. Nevertheless, in the long term a degree of maintenance and replacement is unavoidable. In order to ensure that the landscape design remains safe and in good condition, design of the public domain elements on the ground floor will be guided by the City’s landscape guidelines

Landscape treatments on the upper levels will be designed to be robust and resilient with easy reinstatement procedures if required. Where bespoke elements such as planters, furniture, play and art features are proposed, detailing will ensure longevity and easy long term maintenance. Once the landscape is established the frequency of maintenance is envisaged to be consistent, however, the solutions for fall protection will be designed with consideration for the ongoing maintenance of these spaces.

Working at Heights

All landscape areas above ground floor will requires scheduled maintenance at some point near a potential fall zone and as such fall arrest infrastructure will be provided to allow safe access to areas with a risk of falling. Maintenance contractors will need to certified with relevant legislative guidelines and procedures implemented to ensure safety during all landscape maintenance operations. The majority of landscape areas can easily be accessed from adjacent hardstand areas for maintenance purposes. Maintenance activity associated with the balcony planters will need to be undertaken via vertical high access, managed and programmed by the body corporate.

Irrigation

Irrigation will need to be operated via an automated system controlled by the facility manager. Water consumption should be managed by the body corporate and metered. The automated irrigation system can be monitored to detect malfunctions so that rapid response rectification can be programmed before the planting is detrimentally affected by a disruption to water supply.

Podium & Balcony Planters - Indicative inspection and maintenance matrix				
Area of Attention	Inspection Item	Inspection Frequency	Inspection Procedure	Necessary Action
General gardening and review of growing medium & attachment structures	Check for loss of integrity of growing medium/planters/mulch and any related adverse plant growth problems	4 Visits per annum total with detailed and general inspections conducted between above-mentioned visits,	Inspect each planter box and mulch layer at close range for signs of loss of integrity as applicable to visit type	
	Check moisture levels of growing medium		The medium should neither be saturated or dry, rather uniformly moist	
	Check general plant growth condition – are all or only some healthy		General / detailed inspection of all plant species growing in panels as appropriate to visit	
	Check for weeds growing	General Inspection required	As Above	
	Check for signs of disease or pest damage to plants and growing medium	6 times year / from within the building on each respective floor	As Above	
	Check for uncontrolled or over-growth		General / detailed inspection of all plant species growing.	Prune and remove excess plant material. Appropriate adjustments to manage soil chemistry will be made, as required
	Monitor plant nutrient requirements		Check fertilising regime report, to ensure nutrients are maintained at appropriate levels. Observe condition of plants, in terms of nutrient availability symptoms	Apply controlled release fertilizer in Spring.

Drainage & Irrigation - Indicative inspection and maintenance matrix				
Area of Attention	Inspection Item	Inspection Frequency	Inspection Procedure	Necessary Action
Automated Irrigation and System Generally	Check all drainage points (where accessible)	Detailed Inspection required 4 times a year	Check all drainage points for accumulation of fallen debris, leaves and weeds at all drainage points throughout the green facade system	Remove and clean drainage points
	Irrigation drip line	Visits to be spread evenly over the 12 month period	Check for blockages or irregularities in dripper apertures	Repair or replace drainage drip lines if damaged or faulty
	Irrigation drip-line supply line in spoon drain		Check for blocks or breaks in the irrigation pipes by conducting general irrigation test	Repair or replace faulty hose sections

Irrigation System - Indicative inspection and maintenance matrix				
Area of Attention	Inspection Item	Inspection Frequency	Inspection Procedure	Necessary Action
Automated Irrigation individual components	Irrigation Controllor	2 Visits in total with alternate detailed and general inspections	Check power / operation and run self diagnostic test	Service / Repair / Replace as required if faulty; Call the Manufacturer for Technical support
	Solenoid valve with Flow Control		Check that the solenoid valve is regulating flow, (Listen for clicks sounding) open on actuation	Service / Repair / Replace as required faulty valve/component
	Pressure Reducing valve		Check static / operational pressuring	Inspect / clean / replace as per manufactures Instructions
	Ball valves		As above	As above
	Techfilter		Unscrew, check port, check filter, should appear in clean condition	As above
	Pulse water meter		Check that the meter is recording to the controller, so flow alarms are functioning	Inspect / clean / replace as per manufactures Instructions



06. TREE CANOPY & DEEP SOIL

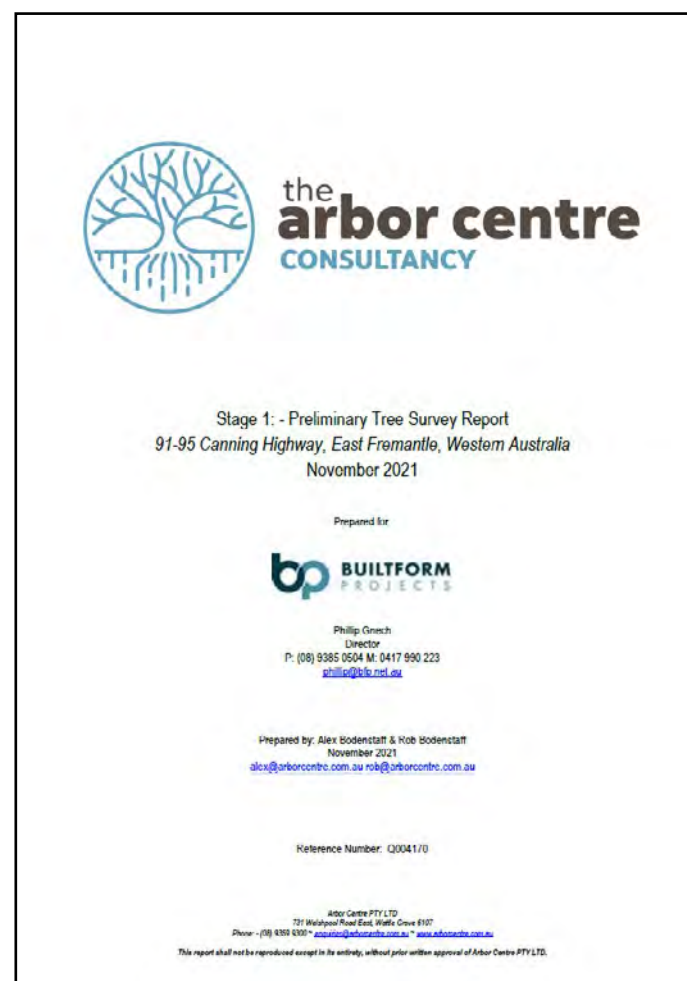
3.1 Tree Strategy

Arbor Centre has been commissioned to undertake a review of the 27 trees on site to benchmark current health and structural status and identify preliminary management considerations in light of the proposed construction and landscape proposed.

The significant *Ficus macrocarpa* var. *hillii* is considered to be a good specimen, with good health and a Useful Life Expectancy of 10-40 years and is worthy of retention. The majority of the remaining tree on site display a questionable or acceptable level of tree health and those identified for retention (generally *Agonis flexuosa* and *Eucalyptus camaldulensis* var. *camaldulensis*) will require remedial arboricultural works to be returned to an acceptable or good level of tree health.

The report also identifies Tree Presevation Considerations and retention specifications for the management of trees during the construction period.

Refer to Preliminary Tree Survey Report November 2021






6.1 Tree Strategy

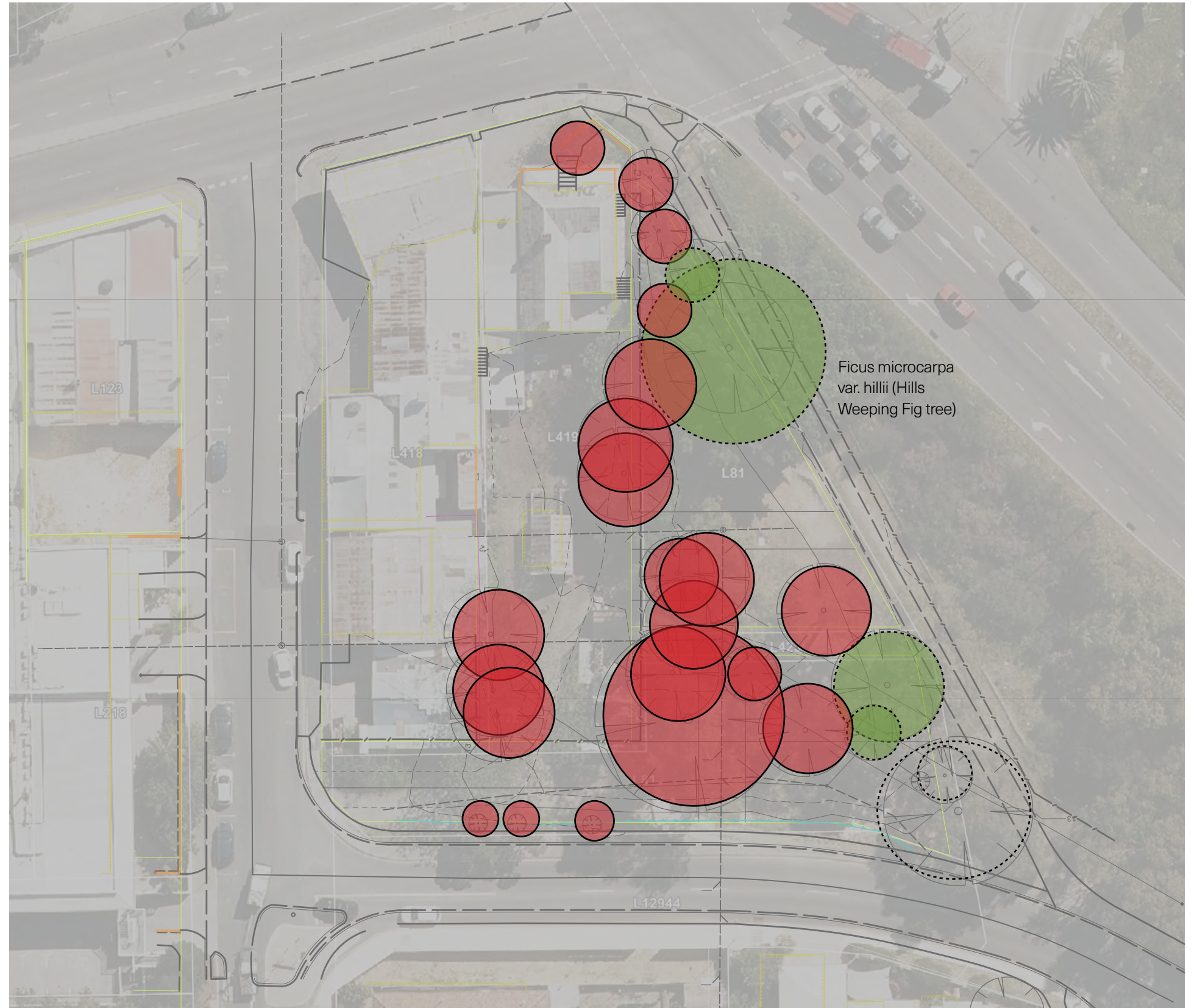
The existing site contains a number of trees on the eastern boundary of the site. Detrimental pruning, limited maintenance and drought stress have impacted the health and vitality of a number of the existing trees and the majority of the trees are planted within a basin set approximately 1m below the street level.

As a result of the existing site levels and required construction of the basement levels of the building a number of trees will have to be removed, however, there is an opportunity to retain quality existing trees and enhance and extend the planting within the site. The design includes a strategy where new and existing trees are combined to create a landscape design which includes a variety of species and sizes. This will assist in improving the quality of the streetscapes, shading public open spaces and integrating the development into the local street network.



Landmark Ficus microcarpa var. hillii (Hills Weeping Fig tree)

-  **Existing tree retained**
-  **Existing tree removed**
-  **Existing Tree Outside Boundary**



7.1 Deep Soil

Design WA

Given the highly urban context of the development a 'hybrid' approach has been taken to achieving the provision of landscape amenity. The landscape design consists of deep soil zones and planting on structure (As defined in DesignWA) to create a landscape approach which is respectful of the surrounding urban context and architectural form.

The table below summaries the extent of landscaping provided across the various levels of the building.

Based on total calculated Lot area of 3861m2 and the retention of existing tree(s), the requirement for this project has been calculated as follows:
A Minimum of 270m2 of DSA (or 7% of the total site area of 11703m2) is required

Total DSA calculated in the below table and diagrams to the right equates to 1063m2:
This Exceeds the DSA of 270m2 (or 7% of the total site area) by 793m2.
DSA have been indicated in the plans to the right while corresponding breakdowns of individual DSA's numbered are provided within the table below

Lot Area: 3861 m² Deep Soil Requirement (7%): 270 m²

Level	Planter	Soil			Total
		Deep Soil Planting [m²]	Planting on structure in lieu of deep soil [m²]	Additional Planting on structure [m²]	
		Counted at 100%	Counted at 50%	Counted at 100%	
Ground Floor	1	168			
	2	182			
	3	370			
	4	42			
	5		120		
	6		94		
	7		151		
	8		22		
Level 3	3.1				
	3.2				
Level 10	1		54		
Level 12	1		124		
Sub total		762	283	0	
Total					1045
DSP to be provided (at 10% of Site Area): 270 DSP achieved: 1045					
Deep Soil Requirement Achieved ✓					

- Deep Soil Zone
- Planting on Structure
- Existing Tree Retained
- Basement Outline
- Lot Boundary



6.2 Tree Canopy

Canopy Caluclations

As per the DesignWA objectives the project seeks to improve tree canopy coverage of the site. In addition to the retained trees the design includes additional tree planting to :

- Provide shade to amenity areas
- Reduced temperatures of external areas through evapotranspiration
- Mitigation wind within the development
- Noise Mitigation & Habitat Creation

As per State Planning Policy 7.3 Volume 2 - Element Objective 3.3.2 the tree canopy requirement are as follows:

Lot Area	3861 m2	Min. Requirement	Min. Requirement
WAPC Tree Canopy requirements	>1,000m2	1 large tree and 1 medium tree for each additional 400m2 in excess of 1000m2	1 large trees
		OR 1 large tree for each additional 900m2 in excess of 1000m2 and small trees to suit area	8 Medium

The table below summaries the extent of landscaping provided across the various levels of the building.

Lot Area: 3861 m² Deep Soil Requirement (7%): 270 m²

		Soil			
Level	Planter	Deep Soil Planting [m²]	Planting on structure in lieu of deep soil [m²]	Additional Planting on structure [m²]	Total
		Counted at 100%	Counted at 50%	Counted at 100%	
Ground Floor	1	168			
	2	182			
	3	370			
	4	42			
	5		120		
	6		94		
	7		151		
	8		22		
Level 3	3.1				
	3.2				
Level 10	1		54		
Level 12	1		124		
Sub total		762	283	0	
Total					1045
<div>DSP to be provided (at 10% of Site Area): 270</div> <div>DSP achieved: 1045</div>					
Deep Soil Requirement Achieved ✓					

Basement Outline - - -

Lot Boundary —

Existing tree retained

Small Tree

Medium Tree

Large Tree

Proposed Street Tree (Not included in calculation)

Based on total calculated Lot area of 3861m2 the minimum requirement for this project has been calculated as follows:

A Minimum of 1 large tree and 8 medium trees is required.

As shown in the table below and the diagrams to the right, This project exceeds the minimum tree canopy requirement by including 1 large tree and 13 medium trees. In addition, 23 small trees are incorporated into the design.



