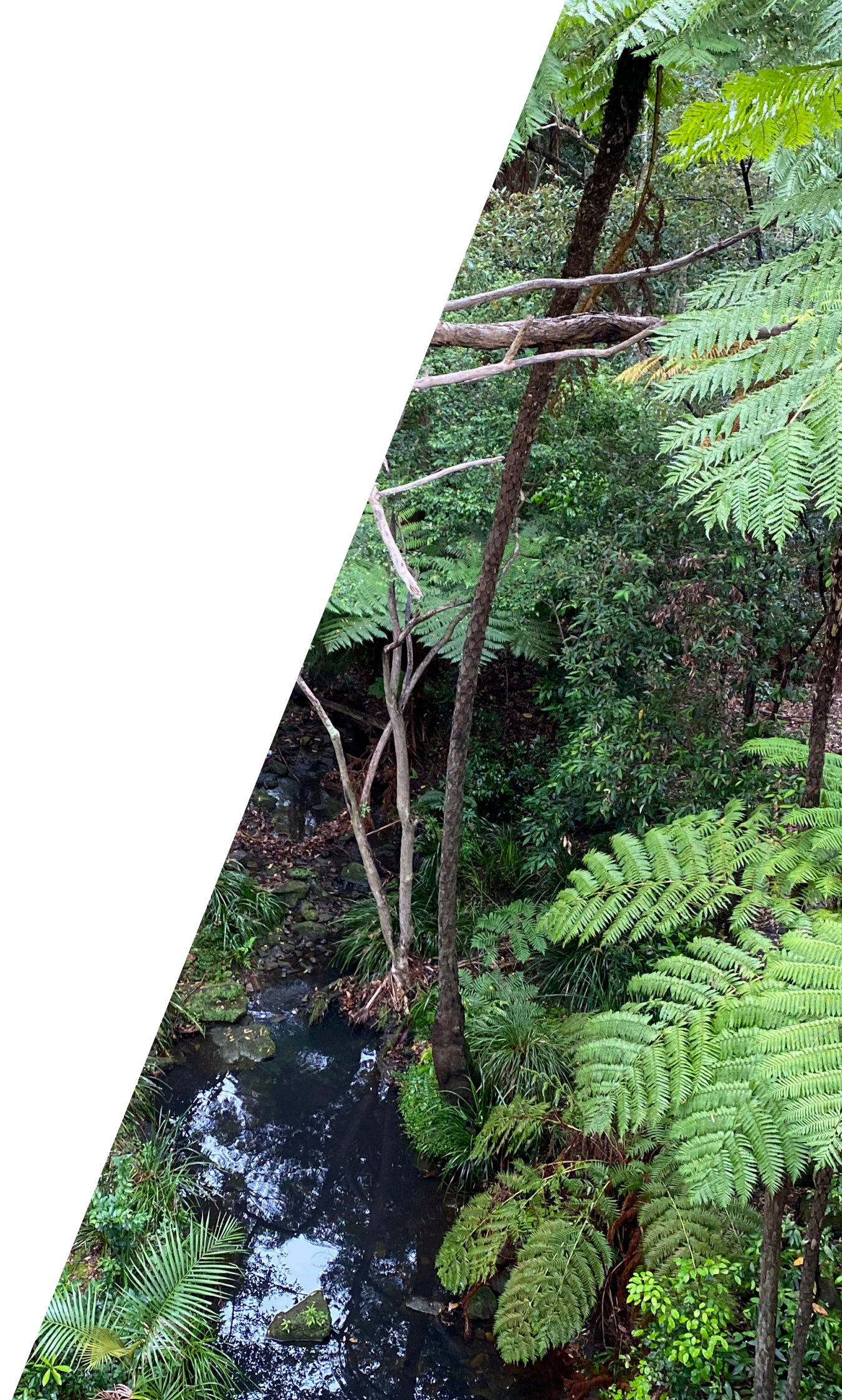


ARCADIA

Topspring St Leonards

**St Leonards South Sections 7-11
Landscape Development Application**

[B] 03 December 2021



ARCADIA

We recognise the First Nations People of Australia and celebrate their continuing cultural practice and connection to Country.

We acknowledge the Traditional Custodians of the land on which we live and work and pay our respect to Elders past, present and emerging.

We are proud that we live in the country with the world's oldest continuous living cultures, and we are working on playing our part as allies to First Nations people across Australia.

Always was, always will be.

Issue B

03 December 2021

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1.0

Urban Context



Introduction

An exciting opportunity to contribute to a lush residential precinct

The project site at St Leonards South offers an exciting opportunity to catalyse green urban living in a high density precinct. Utilising the Lane Cove Council/Oculus masterplan as a departure point for investigation, this design report investigates design options to create a sustainable, permeable and lush precinct for urban living.

Driven by the extensive planning documents and background reports produced to date, the landscape design for areas 9- 11 of St Leonards South precinct focuses on creating a sustainable, green place for living as well as producing high quality, safe and permeable public domain.

Celebrating the transition from St Leonards dense urban centre along Berry Creek and down to the shore of Sydney Harbour, the report explores themes of ecological story telling and placemaking, as well as maximising the biodiversity values of this residential precinct.

This design report has been prepared by Arcadia landscape Architecture for Top Spring Australia and forms part of the DA submission for areas 9- 11 of St Leonards South - to be read in conjunction with Bates Smart design report and accompanying DA documents.



Background Documents

We're listening...

- **North District Plan, Greater Sydney Commission-** St Leonards is identified in the District Plan as a Strategic Centre and as a health and education precinct. Anticipated to have upto 17,000 new jobs 2036, the plan also outlines the need for the area to have additional housing supply.
- **St Leonards South Residential Precinct Plan, Lane cove Council** - finalised in 2020, the plan outlines the framework for developing approximately 9 hectares of low density residential land to R4 High Density Urban Residential. In keeping with the verdant green character of St Leonards, the plan provides key direction in terms of biodiversity connections, pedestrian permeability and communal placemaking.
- **Lane Cove LEP (ammended 2016)** - Max building height at 31m, setbacks between 3 and 7m, through site links at 15m and 6m, North - South communal green link.
- **St Leonards and Crows Nest 2036 Plan, NSWDPiE** - provides direction on building form and connections to public transport routes, in particular the metro station at Crows Nest and train station at St Leonards town centre. Provides direction on placemaking and consultation, including directing First Nations consultation with Metro LALC (at a minimum).



The Top Spring site at St Leonards offers an exciting opportunity to connect with the existing ecologies to provide a lush, vibrant residential precinct

Background Documents

Unpacking the Masterplan

Finalised in August 2020, the St Leonards South masterplan produced by Oculus provides a great departure point for a new, green high density precinct.

Guiding design principles and requirements:

- Topography + accessibility
- Connectivity - maximising via through site links
- Street enhancement
- Open space network - via network of private communal green spines, public parks, links and pocket parks
- Street tree - canopy coverage and character
- Public/private separation and CPTED
- Setbacks and deep soil
- Sustainability - material and planting selection, WSUD, active transport and energy considerations
- Public art integration in each development
- Investigation of Canberra Avenue park extension

Our key concerns:

- Private communal spaces are disjointed and have been designed in overly European, urban fashion with emphasis on hardscape - detracts from local bushland character and reduces permeable spaces and WSUD outcomes
- Topography is not expressed in communal spaces - the steep topography is characteristic of the area and provides opportunity for expression
- Large building footprints - particularly to area 11
- Area 11 communal space exposed to River Road with undesirable Southern aspect, overshadowed by buildings and disconnected from green spine
- Setbacks lack passive surveillance to street
- Planting palette features heavy emphasis on exotic plants - reducing WSUD outcomes, local biodiversity and connection to local bushland character

MASTERPLAN PRIVATE OPEN SPACE TYPOLOGIES - COMMUNAL OPEN SPACE (GREEN SPINES)

INDICATIVE COMMUNAL OPEN SPACE (GREEN SPINES) LAYOUT FOR CONTIGUOUS AREA (KEY SITE AREAS 7-11)

Each contiguous area of Communal Open Space (Green Spine) must contain the landscape elements shown in the landscape plan for each. Final sign-off of the design is required by Council's landscape architect. Ensure that materials and colours in the private landscape areas are suitable for a formal landscape theme. There should be a common material, standard and colour for paths etc that pass through the Communal Open Space (Green Spine). Have regard to solar penetration, environmental factors and the likely apartment layouts / access.



Clenanthus 'Silver-Maroon'



Clivia miniata



Cissus antarctica



Dichondra argentea Silver Falls



Hydrangea quercifolia



Phormium cookianum



Liriope muscari 'Silver Lawn'



Philodendron 'Xanadu'



Plectranthus argentatus



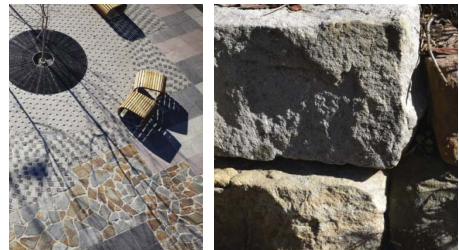
Camellia sasanqua



Rhipsalis excelsa



Viola hederacea



Development Context

A rapidly growing urban oasis

Located in the heart of the Eastern economic corridor and identified as a strategic urban centre by NSW and greater Sydney planning departments, the inner North Shore suburb of St Leonards is undergoing a period of rapid growth and development.

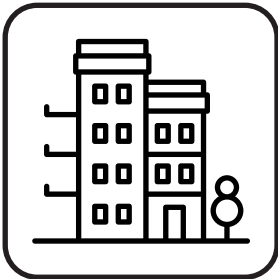
With the town centre undergoing urban renewal and a the new Metro station being developed less than xx metres from the project site, the project site has recently been rezoned from low density residential cottages to the higher density St Leonards South precinct.

With the St Leonards Crows Nest 2036 plan identifying a total of over 6,680 new homes to be built in the area - with approx xx occurring on the project site, the landscape areas - both provate and public - will need to be multifunctional and flexible in order to accommodate the growing community's needs.

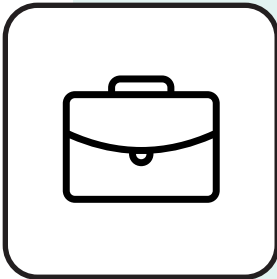
The map adjacent highlights some key development occuring within St Leonards, as well as the project site's relationship to St Leonards South precinct, the new metro and open public space.

Legend

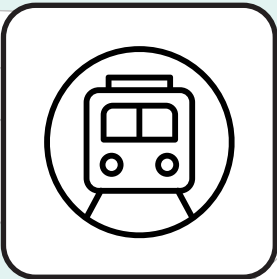
- ✱ Site
- ▨ St Leonards South
- New developments
- 🚉 Train Station
- 🚇 Metro Station
- 🌳 Open Space
- Bicycle Routes



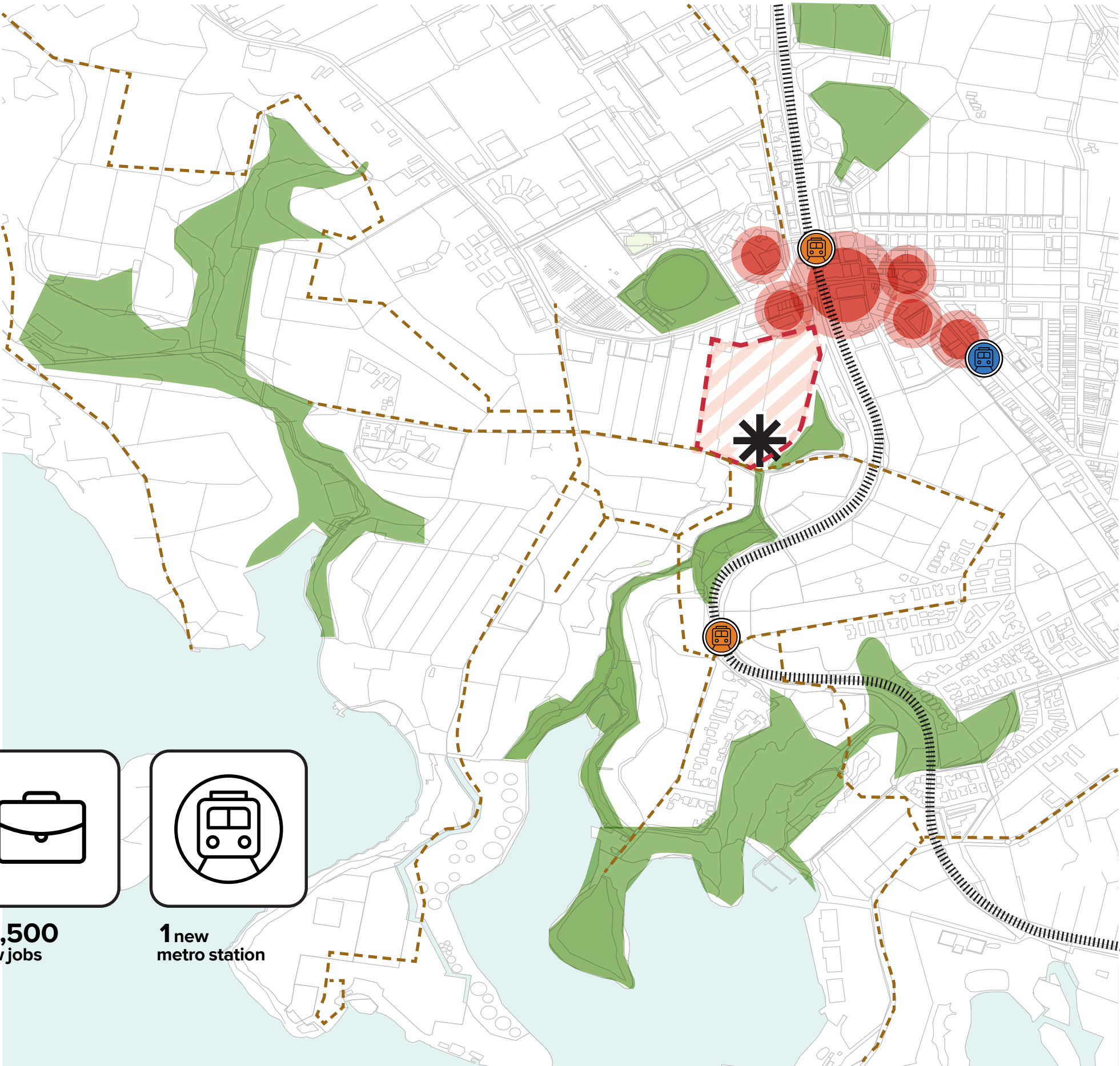
6,683
new homes



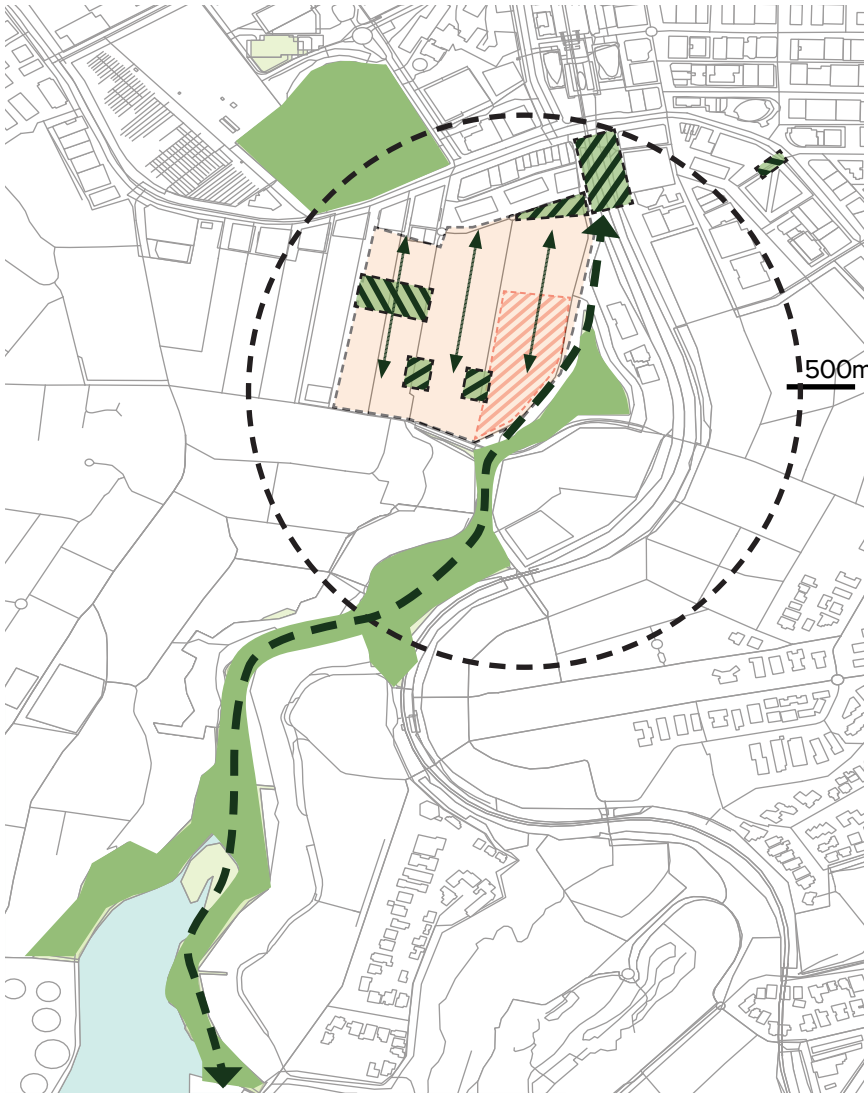
16,500
new jobs



1 new
metro station



Urban networks

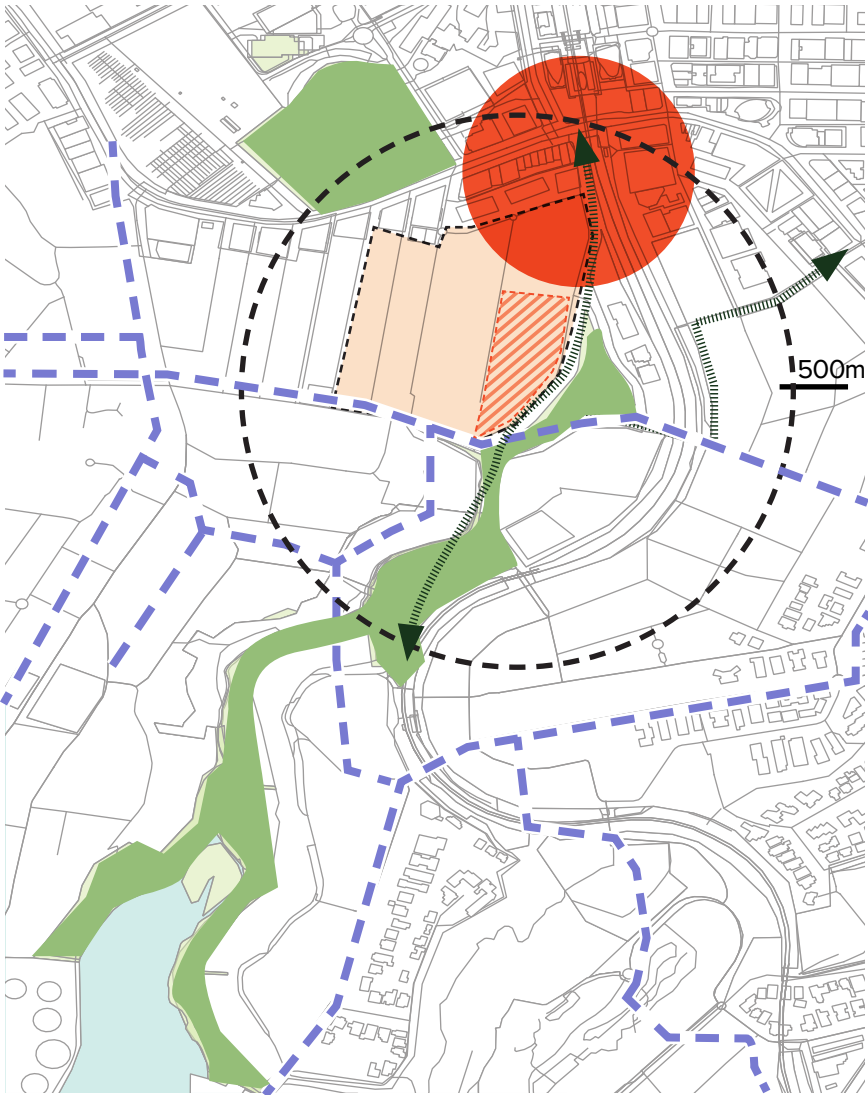


Green Open Space

Green open space analysis reveals that the site is found along a key green vein from the ridgetop at St Leonards down to the harbour along Berry Creek to Berry Island.

Legend

- Project site
- Green open space
- Proposed green space
- Proposed green corridors
- Green vein



Key Places and Pedestrian Movement

Movement and key places reveals that the site is located less than 500metres from the town centre, providing convenient access to shops and employment.

Legend

- Project site
- St Leonards South precinct
- Town centre
- Circulation routes
- Bicycle routes



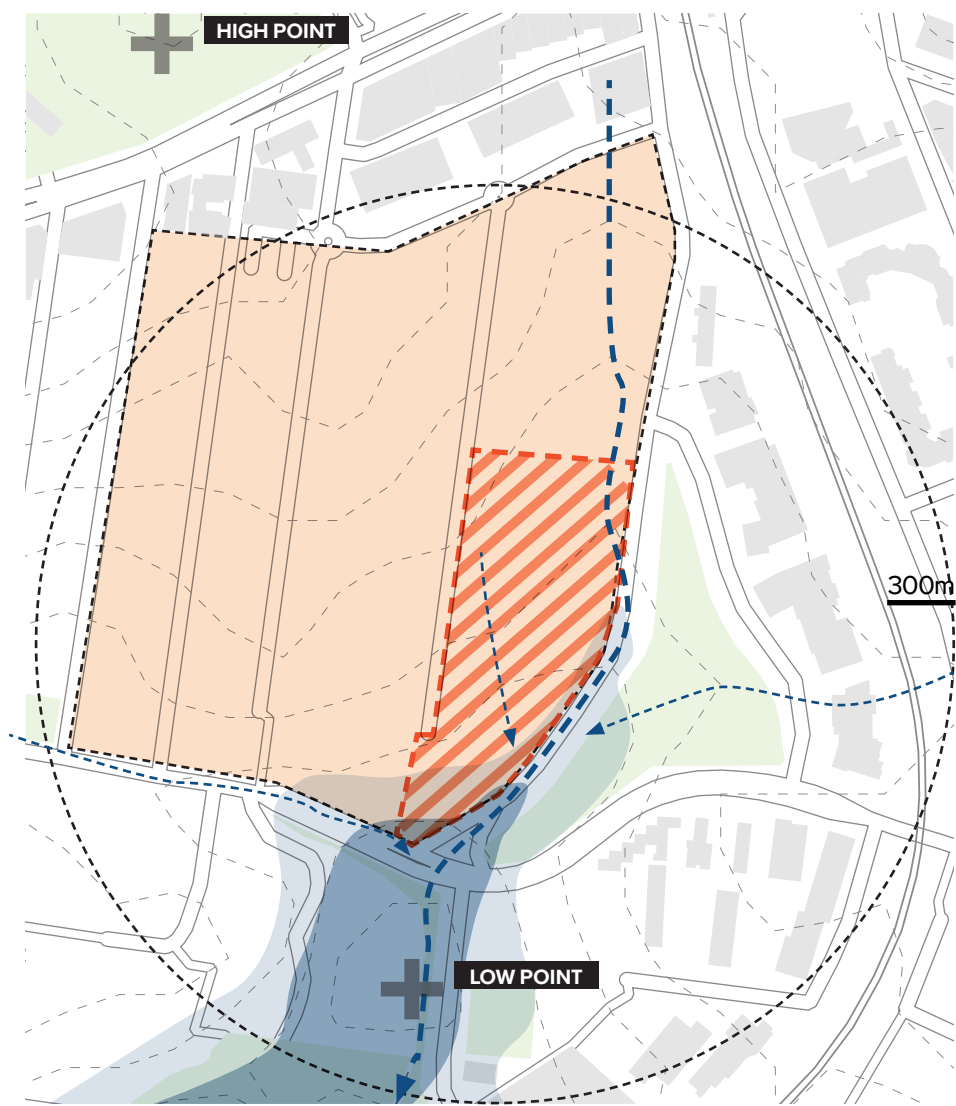
Public Transport

The project site is conveniently located within 5 minutes walk from mass transit stations including rail and the proposed metro station

Legend

- Rail and stops
- Metro and stops
- Bus network and stops

Natural Systems

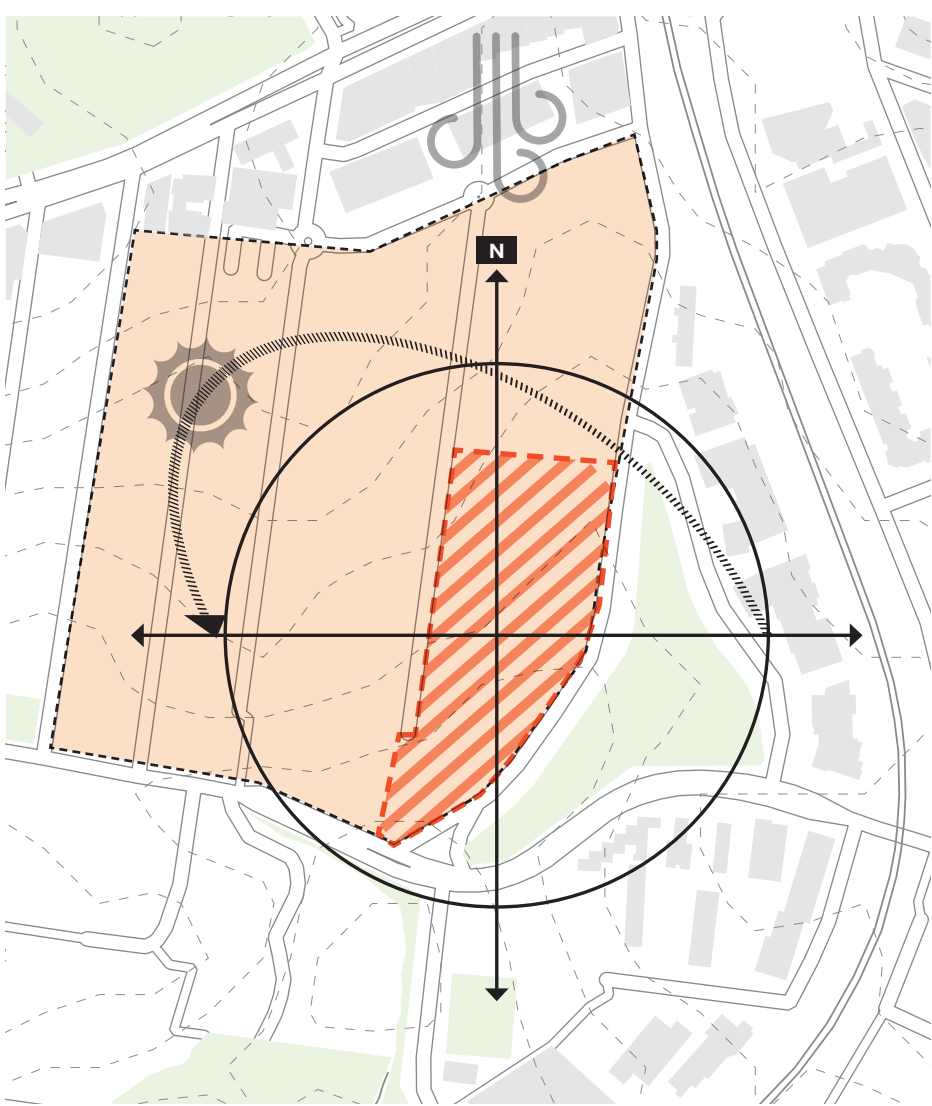


Hydrological Systems

Located along a key drainage line, the site is subject to flooding at the Southern interface at River Road and Canberra Avenue, before draining into Berry's Creek.

Legend

- Project site
- St Leonards South precinct
- Drainage paths
- PMF



Climate

With a South Eastern aspect interfacing with the adjacent park land, the landscape provides a coll, leafy outlook that will require consideration of solar aspect during cooler months.

Legend

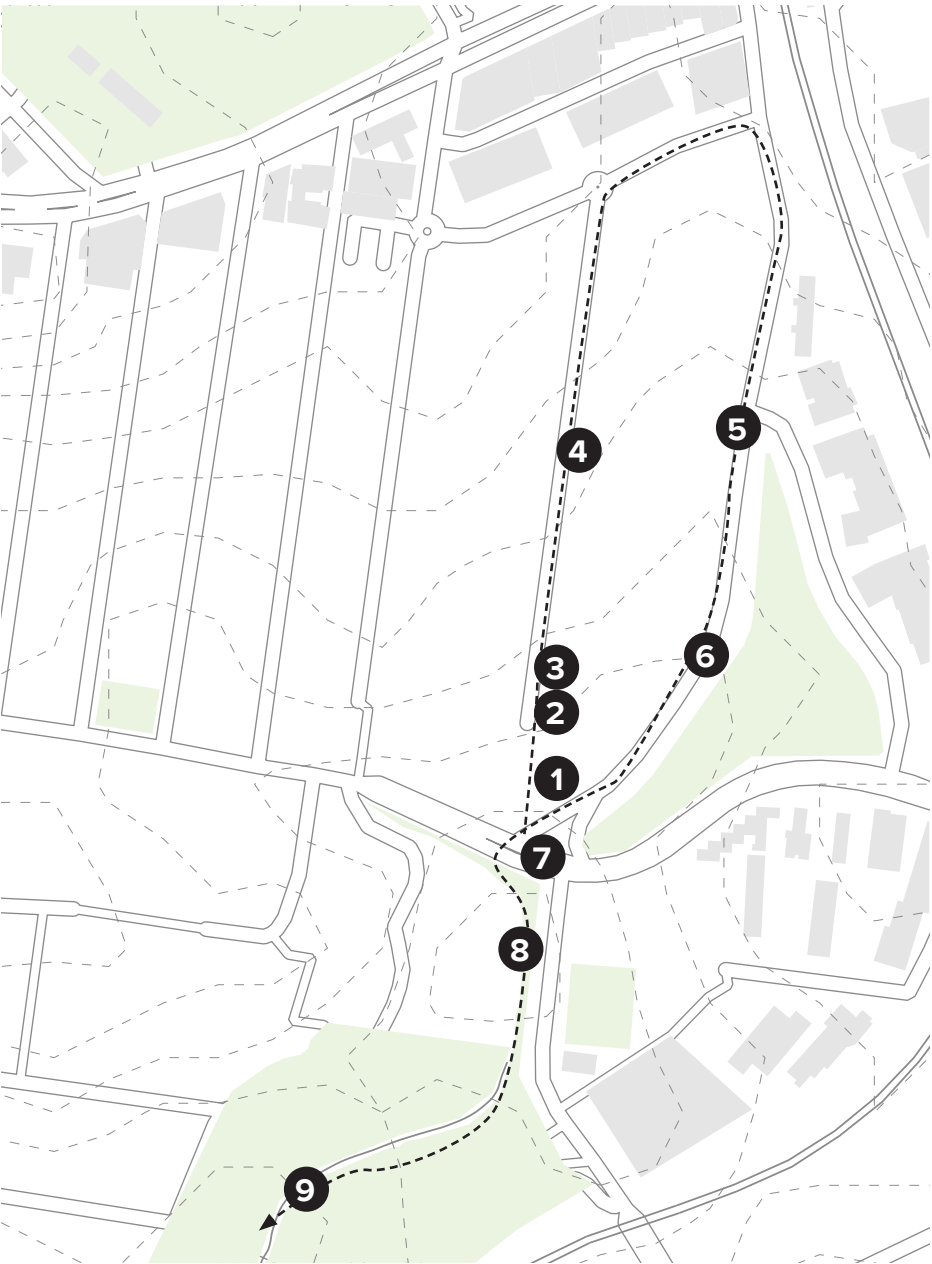
- Project site
- St Leonards South precinct
- Predominant wind direction
- Sun path



Ecologies

Located on a sandstone outcrop, the site would have naturally featured Sydney Gully typologies now featuring an eclectic mix of suburban planting, the site would once have featured ferns and angophoras similar to the ecologies along Berry Creek.

Site Character



Verdant, natural + fine grained

The character of this area takes on an unmistakably green and lush character, with much of the natural bushland setting forming the backdrop for the area. Sandstone is a regular feature in retaining walls and paving, while the streets take on a fine grained character.

2.0

Understanding Place



On Cammeraygal Country

Worami, you are on Cammeray land, a sacred place along the Burramatta.

The land we now call St Leonards lies within the sacred lands of the Cammeraygal of the Gai-Mariagal Nation. Located along a green vein following a freshwater creek that leads to Sydney Harbour at Berry Island, there are opportunities to connect to dreaming stories and Cammeraygal heritage and culture.

In his beautiful retelling of the creation stories of Sydney in his book “What the Colonists Never Knew: A history of Aboriginal Sydney” Uncle Dennis Foley, a Gai-Mariagal Elder introduces us to the spiritual and cultural significance of an ancient land created in the time of dreaming:

When Biaime, the creator spirit, awakened from her great sleep and gave birth to her son, the birth sac created the oceans and seas to the East of Country. Awakening three giant creation goannas, they hungrily scratched and clawed in search of food, creating the cliffs, coastline and vast canyons that would become the jagged shoreline of Sydney Harbour. Exhausted from their journeys, the goannas would lay down to rest, their bodies becoming the ridgelines and hills of important ceremony places throughout Sydney (Foley, 2020: 20-21).

Located at the head of a freshwater creek, the project site maintains this eons held connection to the harbour and dreaming stories, with several important cultural sites being located at Berry Island and nearby Balls Head Reserve. At Berry Island, a giant sea creature drapes over the rock, below a boomerang or perhaps a crescent moon, linking to stories of the Cammeray; while the giant whale carving at Balls head speaks to the sacred whale birthing site adjacent. By connecting with local knowledge holders in a reconciliatory process of collaborative design, the ancient spiritual significance of this site can be celebrated, in addition to celebrating its rich colonial heritage.

Colonial History

Land Use Narrative



Artarmon House

1818

William Gore was appointed provost-marshall of New South Wales and built a cottage known to become Artarmon House.

Brickworks

1828

Bricks were first made in the area in 1828. By 1889 the Gore Hill brickworks were the largest in NSW. During the mid to late 1800s the brick industry was a primary source of employment in the area. Many “brickies” made a living carting bricks in horse-drawn drays. The railway arrived.

St Leonards development

1853

St Leonards was named after English statesman Thomas Townshend, 1st Viscount Sydney of St Leonards. Originally, St Leonards applied to the whole area from the present suburb of North Sydney to Gore Hill.

Rail lines

1890

The North Shore railway line opened in St Leonards and originally ran to Hornsby

1943 Early Subdivisions

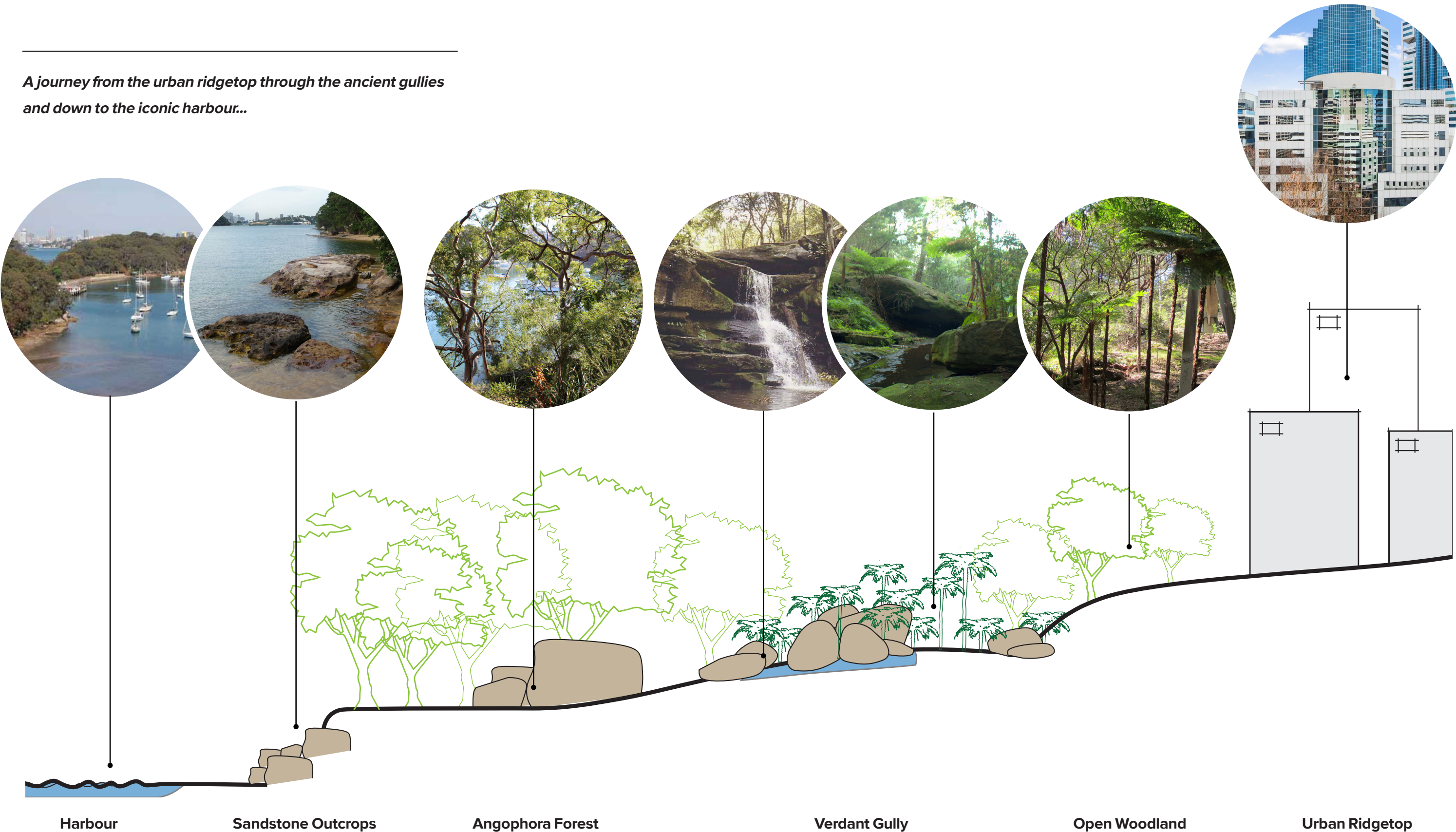
1943

Urban development in st Leonards intensifies, with suburban quarter acre blocks being subdivided and developed.

Key events

Landscape Experience

A journey from the urban ridgetop through the ancient gullies and down to the iconic harbour...



3.0

Landscape Vision

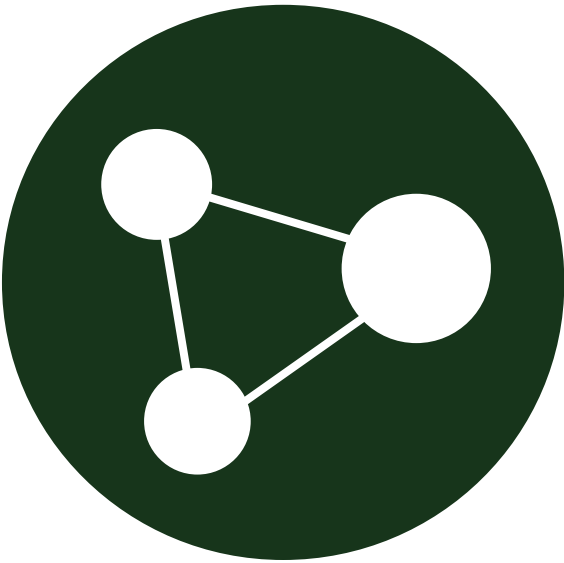


Our Vision

To create an ecologically responsible, vibrant new community nestled within verdant habitat corridors where nature and culture co-exist in harmony



Design Principles



Garden life/ Social life

High quality communal spaces that provide the platform for engagement, supporting a social and connected community within a verdant green setting.



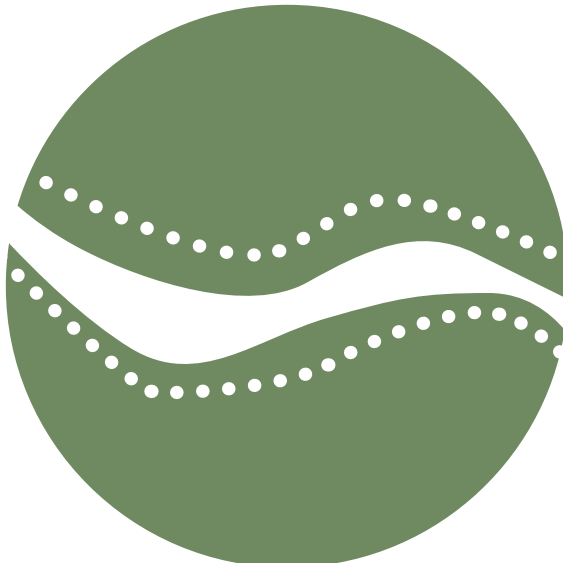
Urban Oasis

Retreat and recreate within a rich and diverse bushland setting, moments from developing urban hubs.



Design with Country

Paying our respects to the Cammeraygal, the design should connect with the local landscape and support its health.



A Chain of Places

A collection of experiences. Create a series of places for the community to explore and enjoy, emulating the journey along Berry Creek and link to the harbour.



Refined Naturalism

Putting nature on display with strategic design moves to connect residents and visitors to this unique environment.

Journey to the Gadyan Track

A landscape narrative

The journey down to the harbour offers an exciting opportunity to interpret the microcosms of Cammeraygal Country that we find as we travel through this sacred land down to the ancient harbour. From ridgetops to gullies waterfalls and riverside forests, the landscape is imbued with stories and artefacts that speak to the eternal connections the Cammeraygal have with this Country.

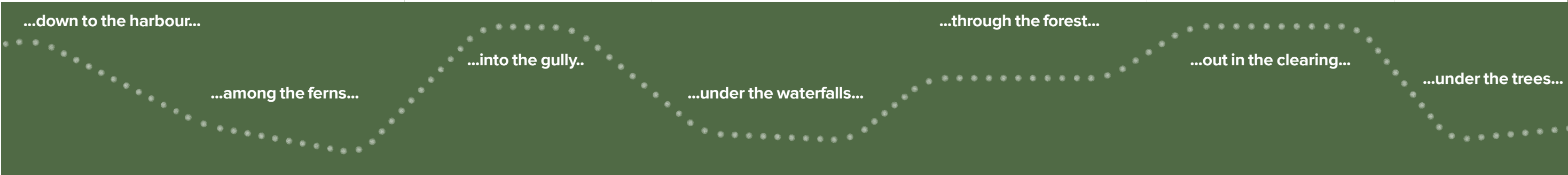


Design Concept Diagram

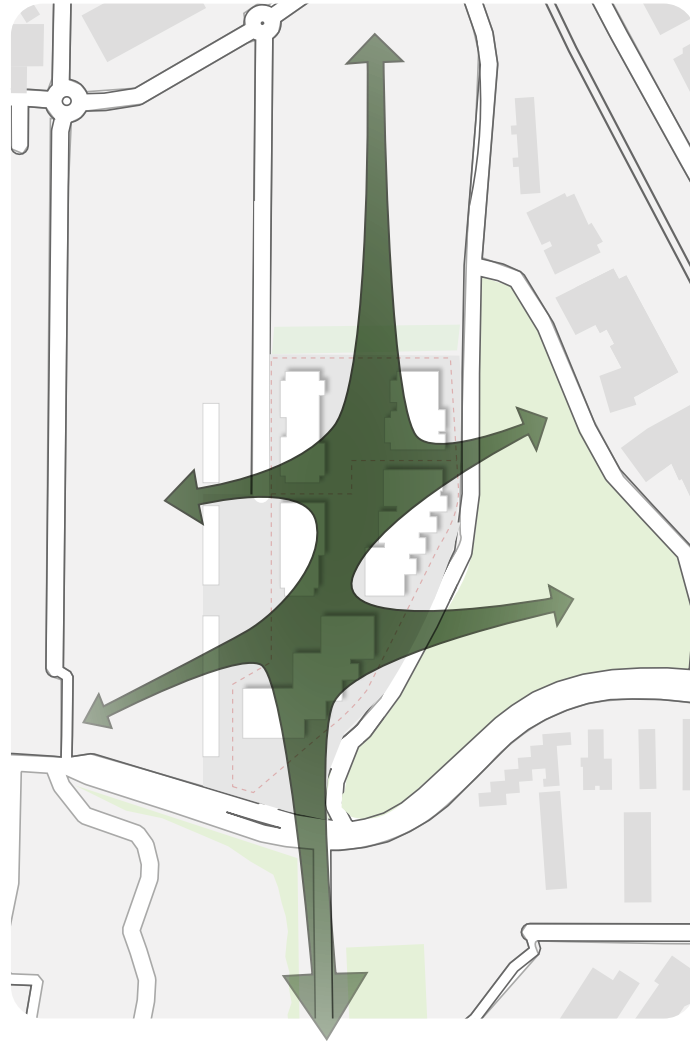
An immersive landscape journey

The design concept draws upon a sequential arrangement of experiences, where the user is taken on a metaphorical journey from the ridgetop to the harbour.

Playing on the dense forest planting of the gullies along Berry creek, the concept moves between dense overhead canopies to clearings, through water features and along elevated boardwalks to enhance the experience of a lush, verdant landscape.

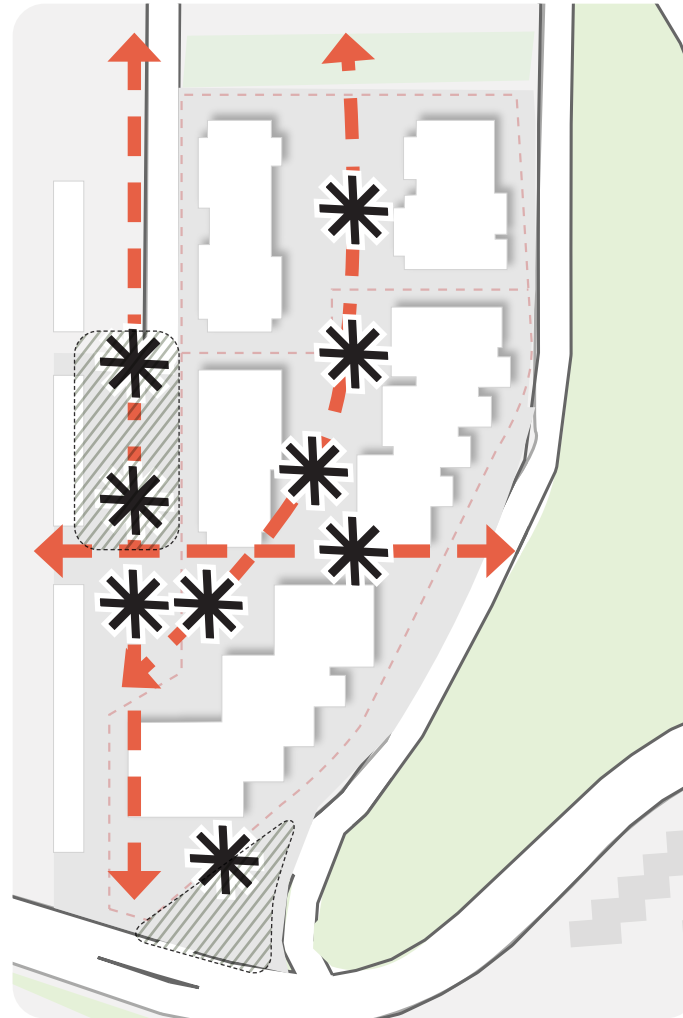


Design Moves



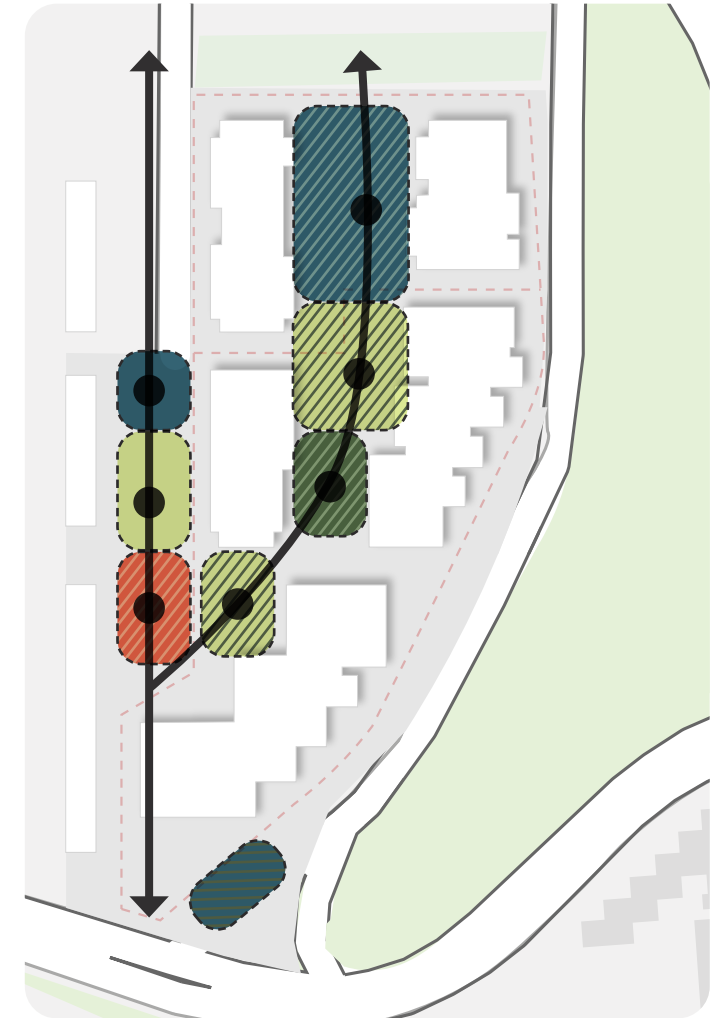
Green links

Create a native corridor link to surrounding ecosystems of the Newlands Park, Berrys Creek and Berry Island.



A sensory journey

Support human experience by creating an environment of sensory delight. Part closures to Holdsworth and Canberra to increase public domain and amenity.



Community spaces

Strings of diverse public and private community spaces to support healthy outdoor living.

4.0

Landscape Design



Landscape Masterplan

1:500 @ A3 0 2 5 10 15 20m

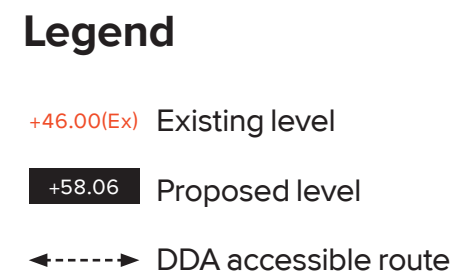


Key Programs

- 1/ Bioretention zone
- 2/ Drainage swale
- 3/ Through site link
- 4/ Elevated boardwalks/nature trail
- 5/ Private communal lawns
- 6/ Private communal bbq areas
- 7/ Garden rooms
- 8/ Childrens play space
- 9/ Private pool space
- 10/ Waterfall/cascade wall

1:500 @ A3

0 2 5 10 15 20m



Access and Circulation

1:500 @ A3

0 2 5 10 15 20m



Site Trees - Intervention

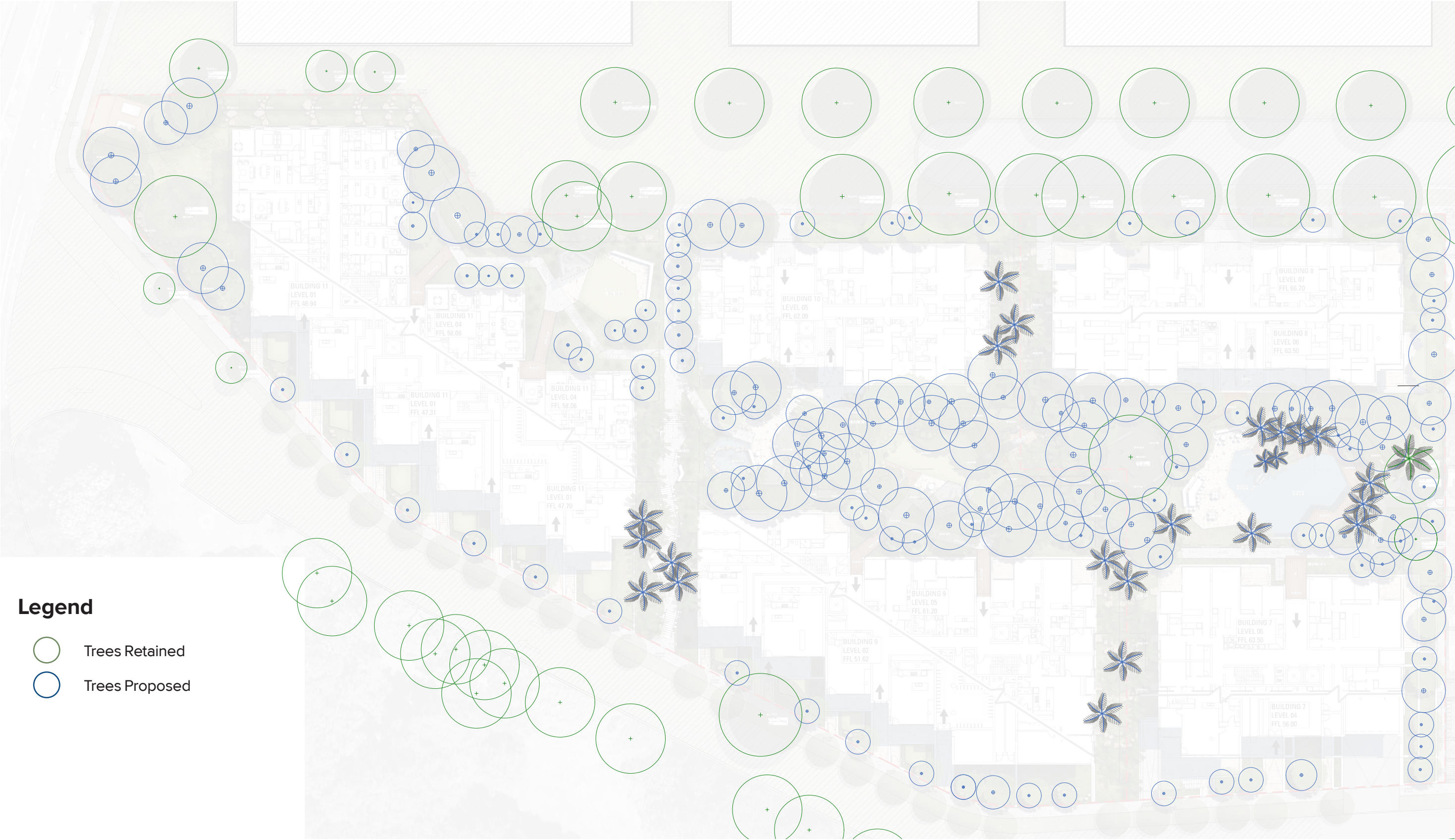
1:500 @ A3 0 2 5 10 15 20m



- Legend**
- Trees Removed
 - Trees Retained

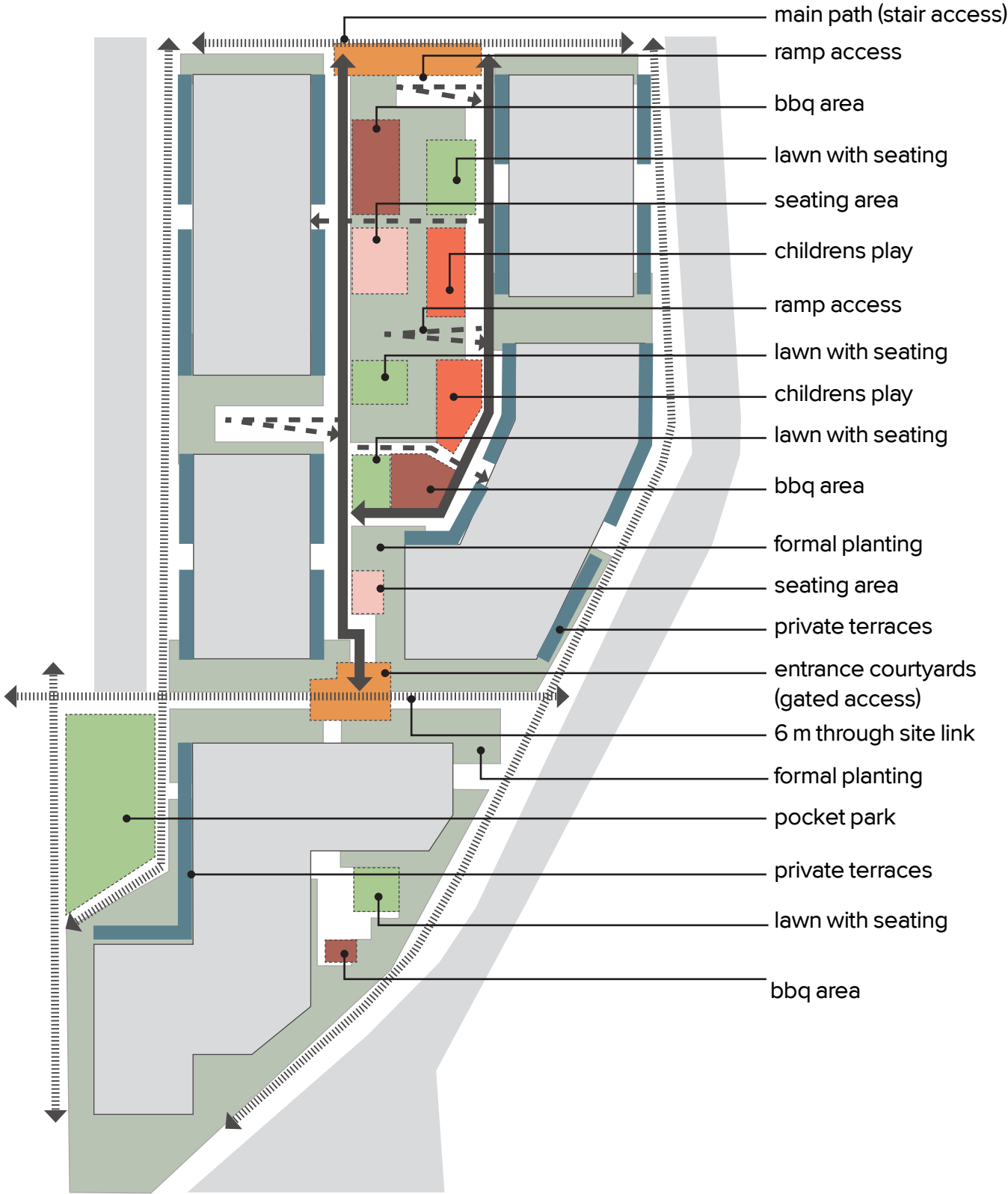
Site Trees - Proposal

1:500 @ A3 0 2 5 10 15 20m



Program comparison

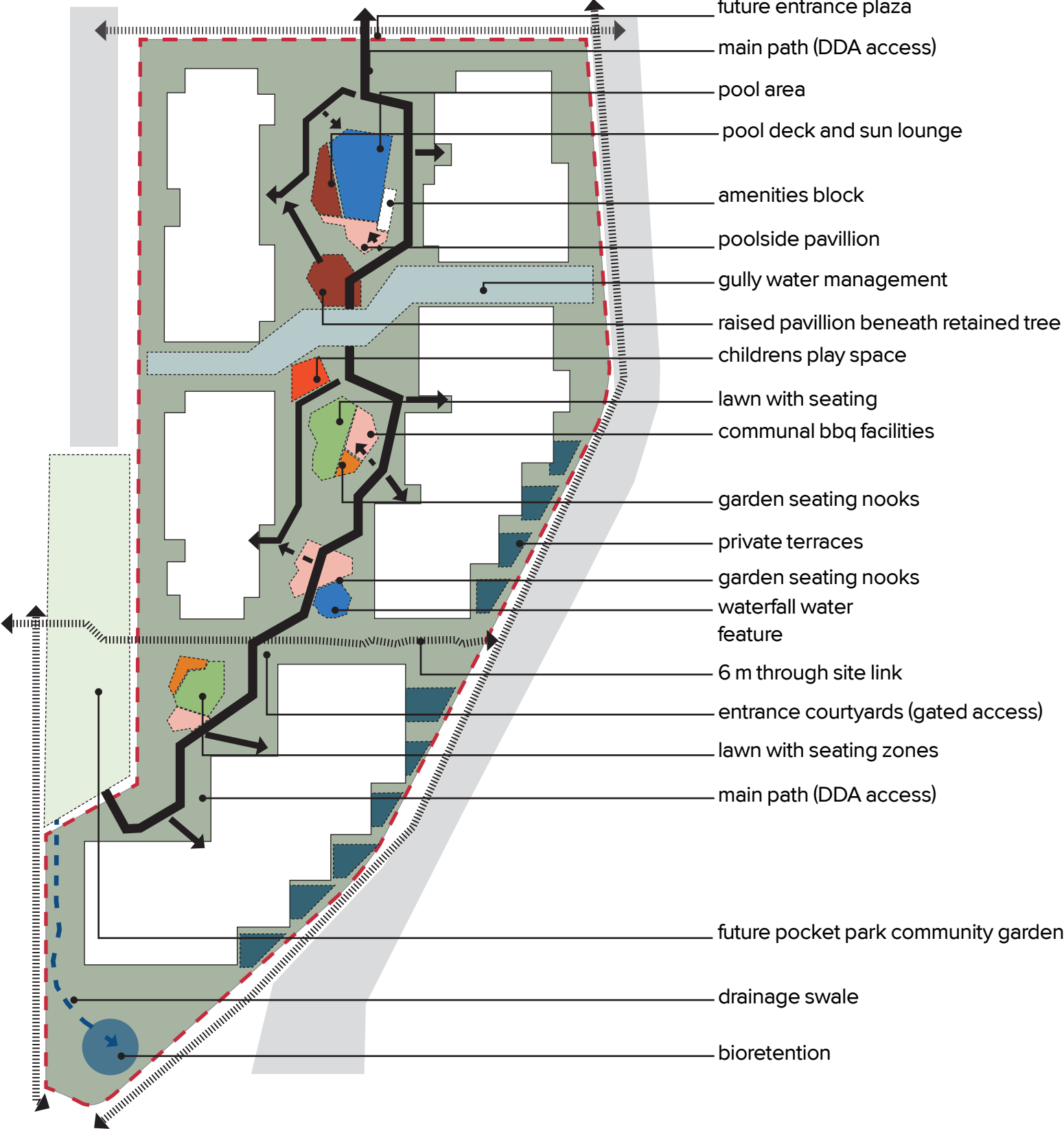
Masterplan Condition



Key departures :

- less rigid, more experiential
- higher programmatic diversity
- more green space, more connected green space
- works with topography
- integrated accessibility

Proposed Condition



Canopy Cover

Existing Condition



Existing trees within site boundary:
69

Trees to be **removed**:
59

Trees to be **retained**:
10

Lane Cove Council
DCP Part J - Landscaping

Objective 12

“Trees that are removed as part of the DA process must be replaced at a 1:1 ratio.

Replacement trees must be able to reach the potential mature dimensions of the removed tree.”

Trees proposed:
110

Replacement ratio:
Minimum = 1 : 1
Proposed = 1.86 : 1

Total tree cover increase:
159%

Proposed Condition



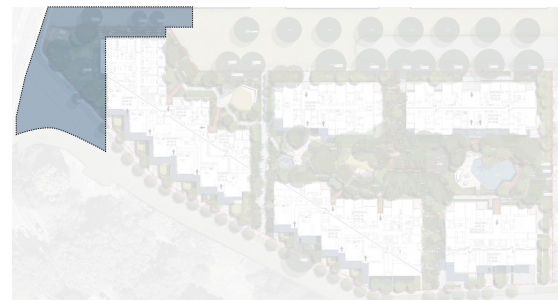
River Road frontage

Legend

- 01 River Road
- 02 Creekline to carry run off from upper site
- 03 Retained existing trees
- 04 New pathway extension to side accessway
- 05 Side accessway with feathered steps and large landing nooks
- 06 Kiosk sub stations

1:250 @ A3 0 1 2 4 6 10m

Key Plan



Water sensitive urban design



Feathered stair integrated with verdant planting



Interactive creekline element

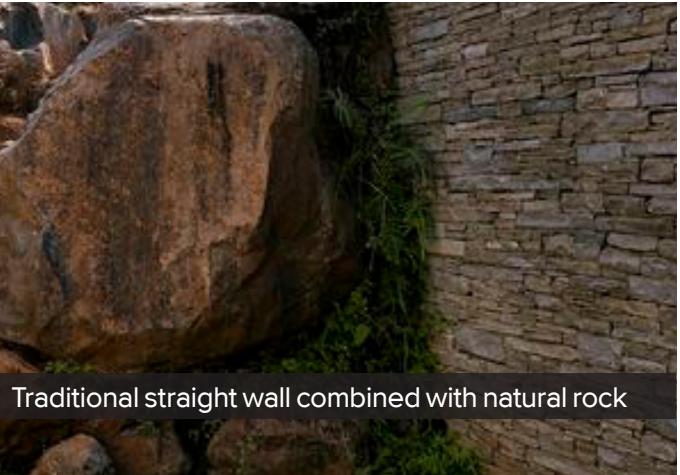
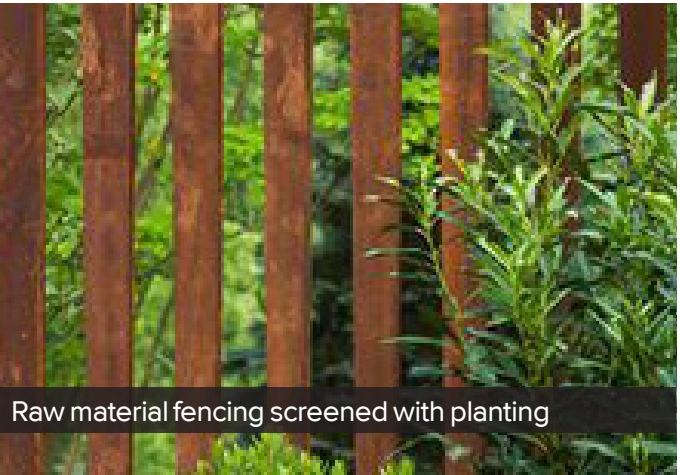
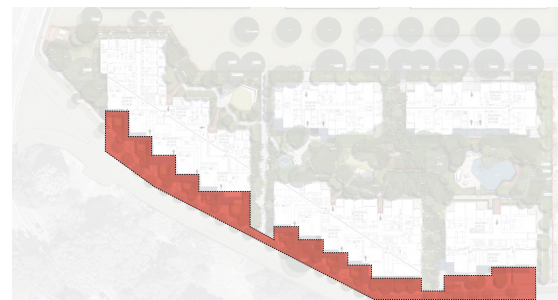
Newland Park frontage (typical)

Legend

- 01 Street tree planting to Canberra Avenue
- 02 Make good existing pathway
- 03 Low stylish planting to new terrace walls
- 04 Feature trees within private front gardens
- 05 Open lawn space of varying size
- 06 Private planting to property borders

1:250 @ A3 0 1 2 4 6 10m

Key Plan



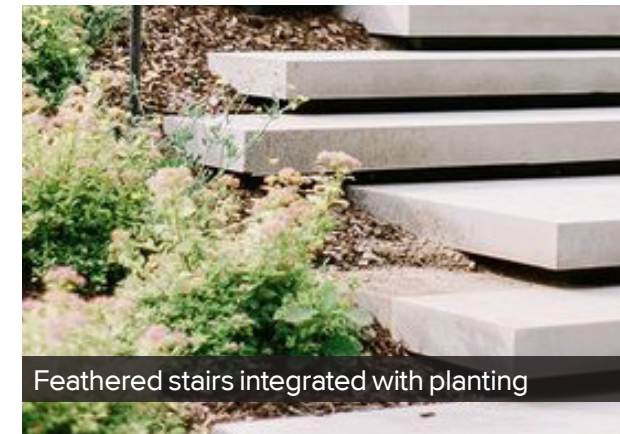
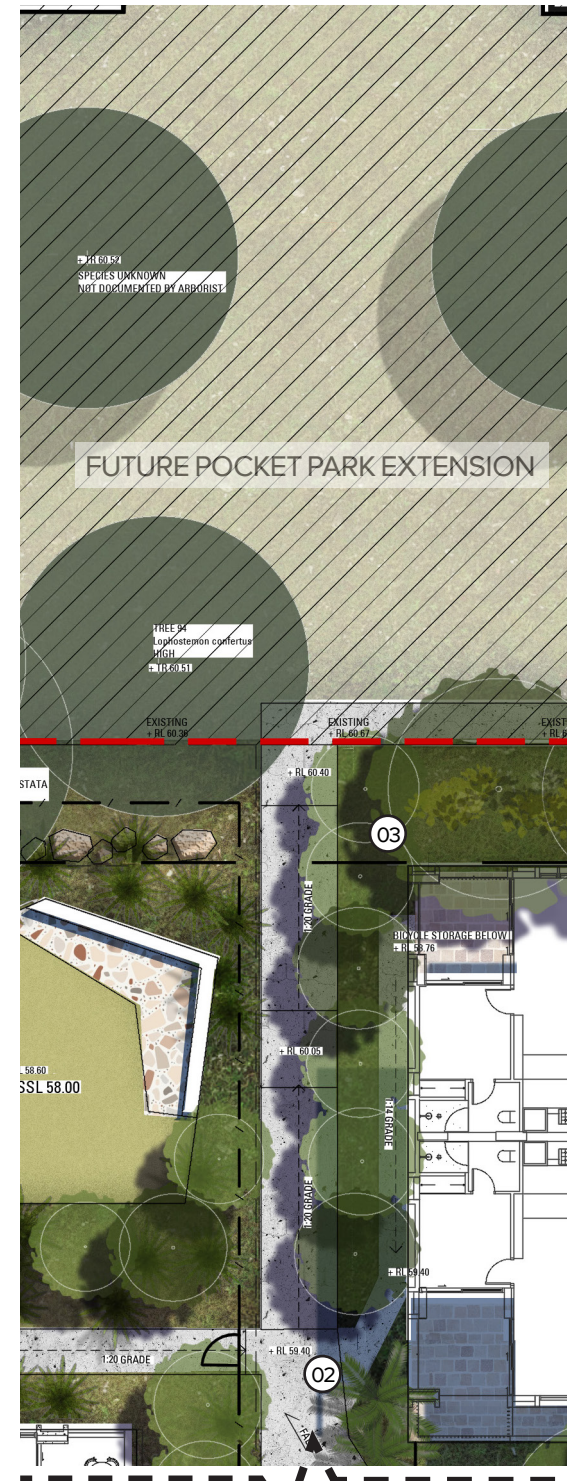
Through Site Link

Legend

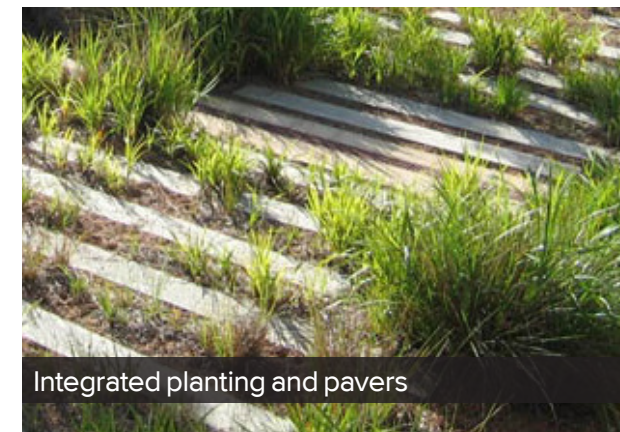
- 01 Feathered steps integrated with a verdant planting buffer
- 02 'Garden rooms' along step trail with seating space
- 03 New tree plantings consisting of palms and native eucalypts

1:250 @ A3 0 1 2 4 6 10m

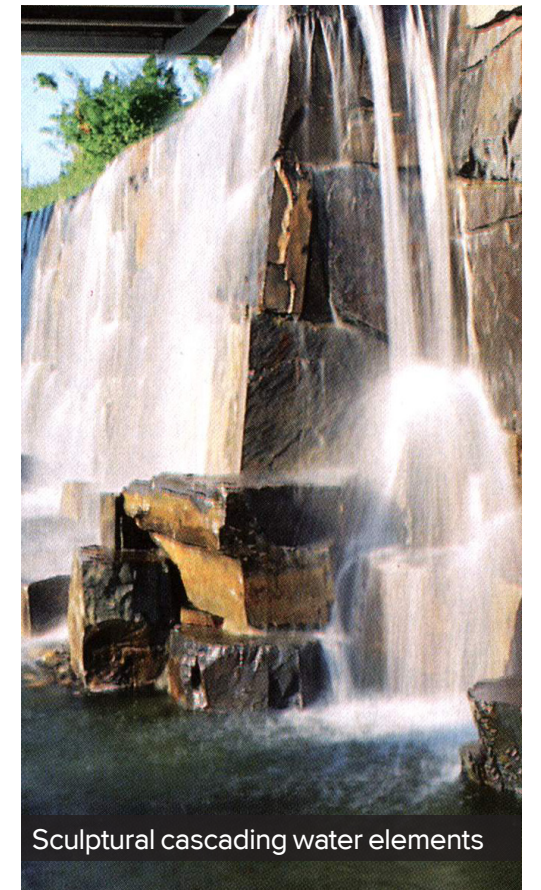
Key Plan



Feathered stairs integrated with planting



Integrated planting and pavers



Sculptural cascading water elements



Secluded garden nooks and areas of immersion along trail

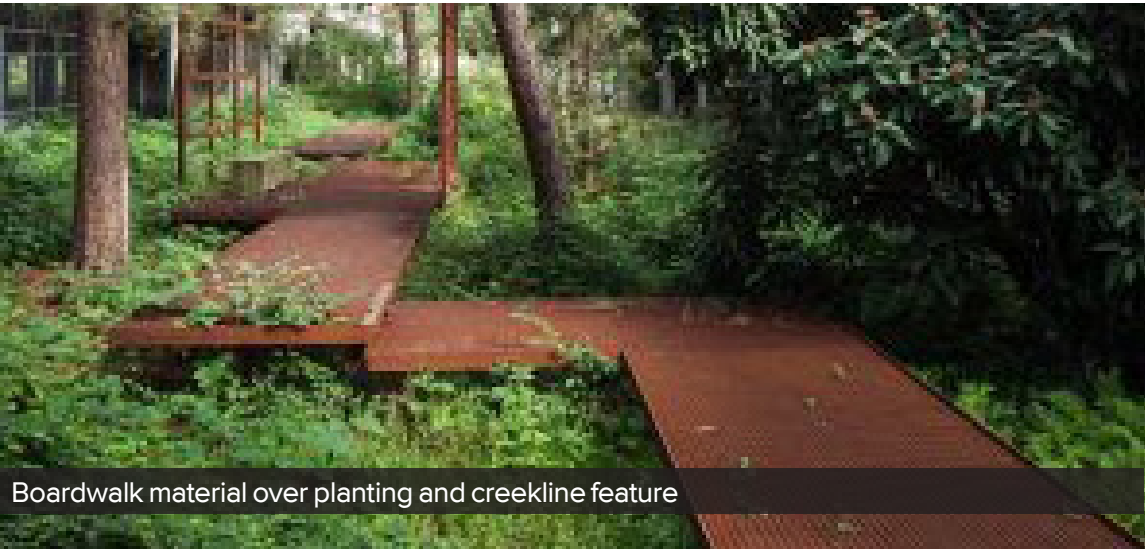
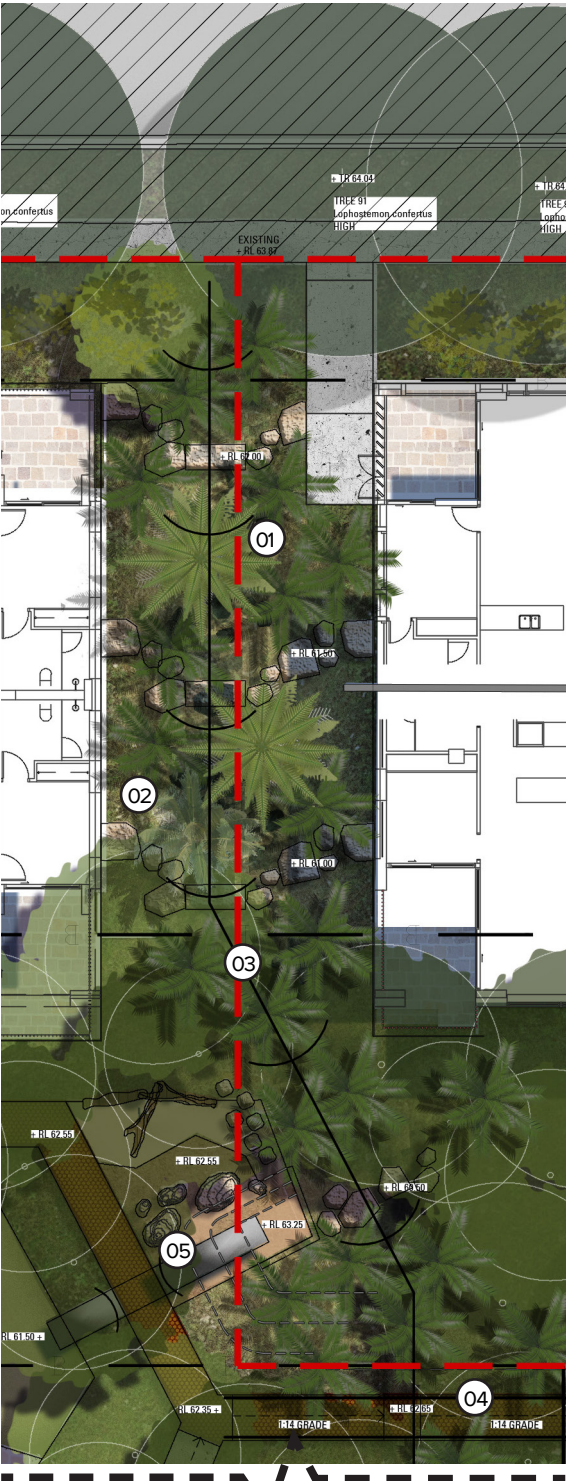
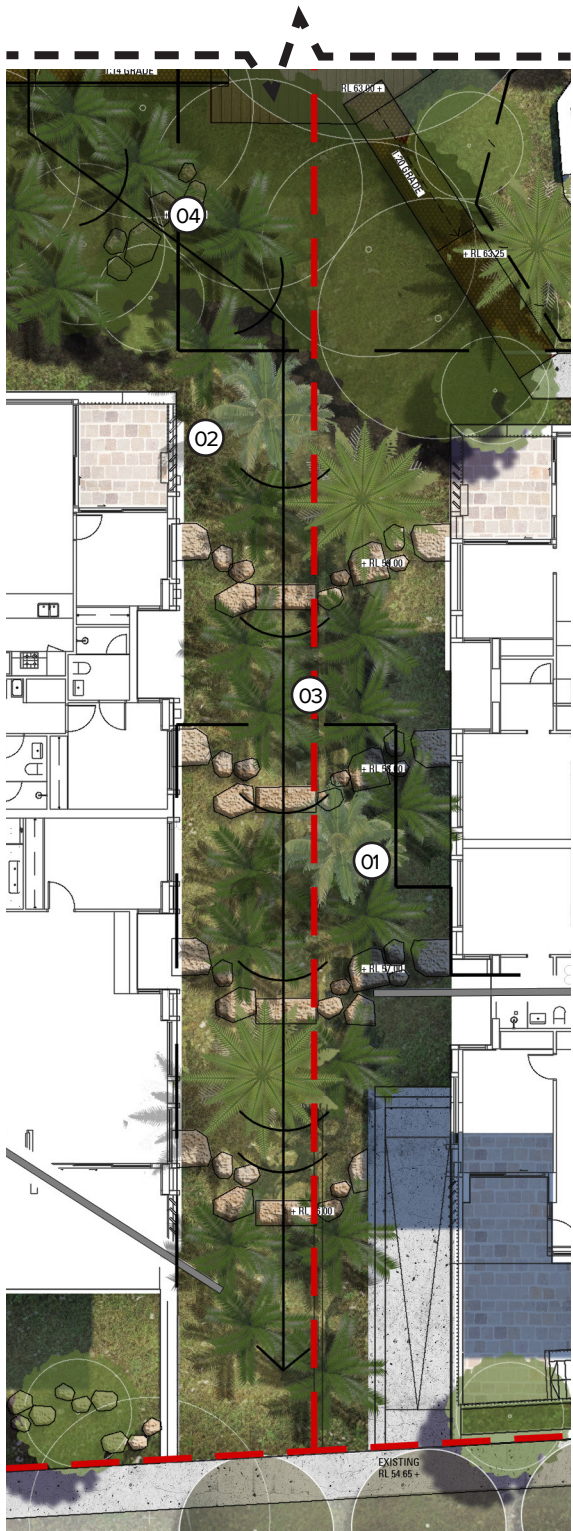
The Gully

Legend

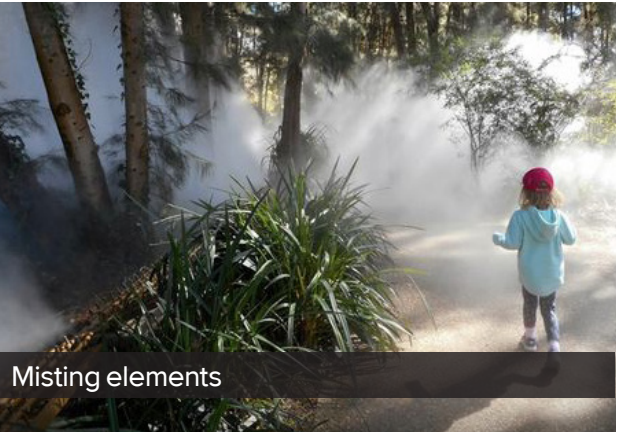
- 01 River rocks along creekline to act as functional and artistic
- 02 New tree planting consisting primarily of ferns
- 03 Water runoff directed down creekline following heavy rain
- 04 Raised boardwalk over creekline and planted areas
- 05 Spftfall mound with slide under boardwalk

1:250 @ A3 0 1 2 4 6 10m

Key Plan



Boardwalk material over planting and creekline feature



Misting elements



Dappled light through canopy



River rocks as sculpture in wet and dry

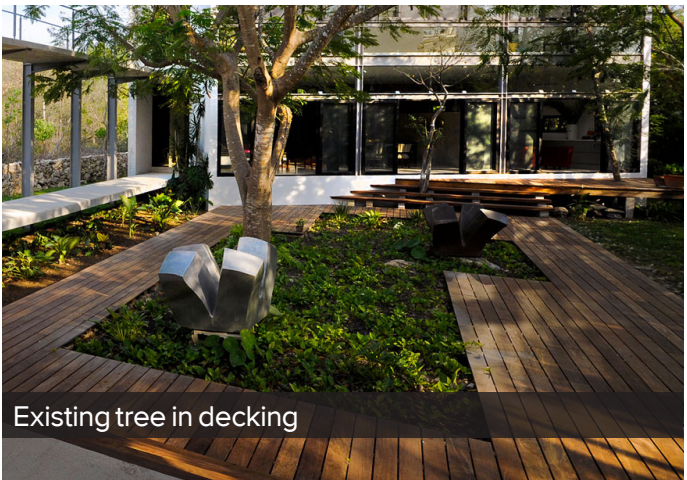
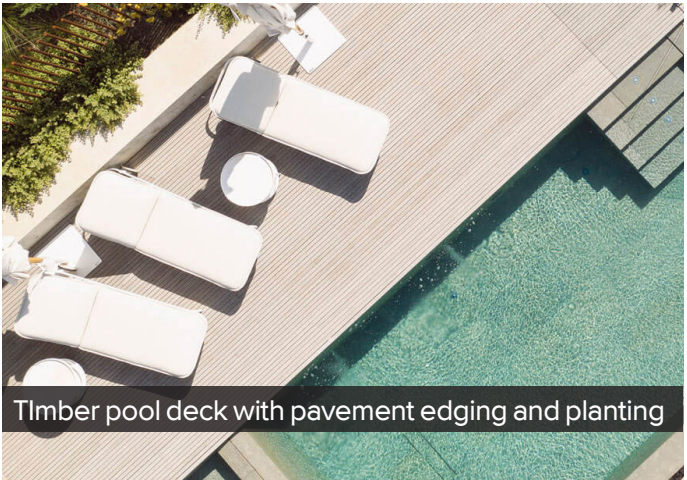
Oasis

Legend

- ① Pool area
- ② Lobby Entry
- ③ Raised timber decking around pool edge with palm plantings
- ④ Raised deck beneath retained significant tree
- ⑤ Palm plantings to pool deck
- ⑥ Pool pavillion
- ⑦ Private outdoor courtyards to adjacent residents

1:250 @ A3 0 1 2 4 6 10m

Key Plan



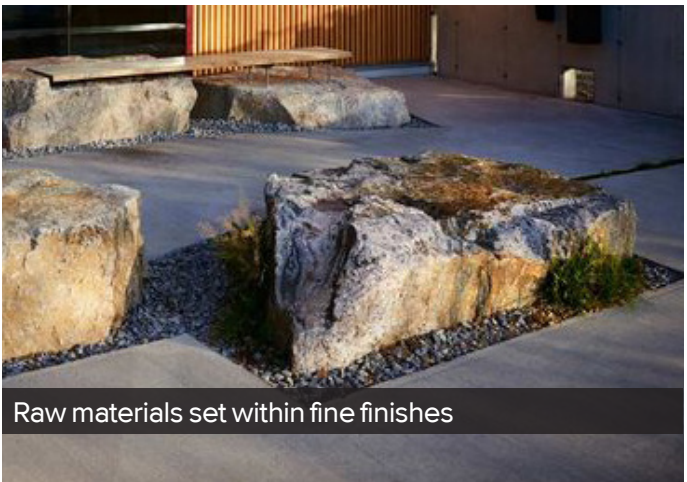
Gully Clearing

Legend

- ① Large communal lawn space
- ② Soft trail and garden nook
- ③ Communal BBQ and pergola to outdoor kitchen
- ④ Feathered large steppers to pathway above
- ⑤ Garden rooms nestled within border planting
- ⑥ Cascade water element above basement
- ⑦ Raised boardwalk to stradle level differences
- ⑧ Childrens play area

1:250 @ A3 0 1 2 4 6 10m

Key Plan



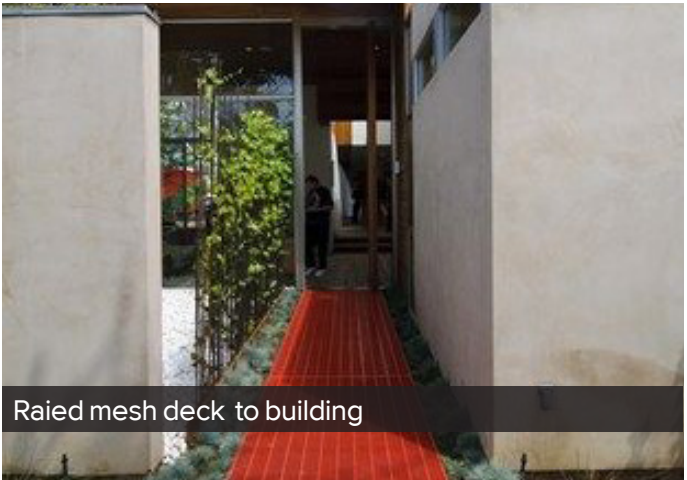
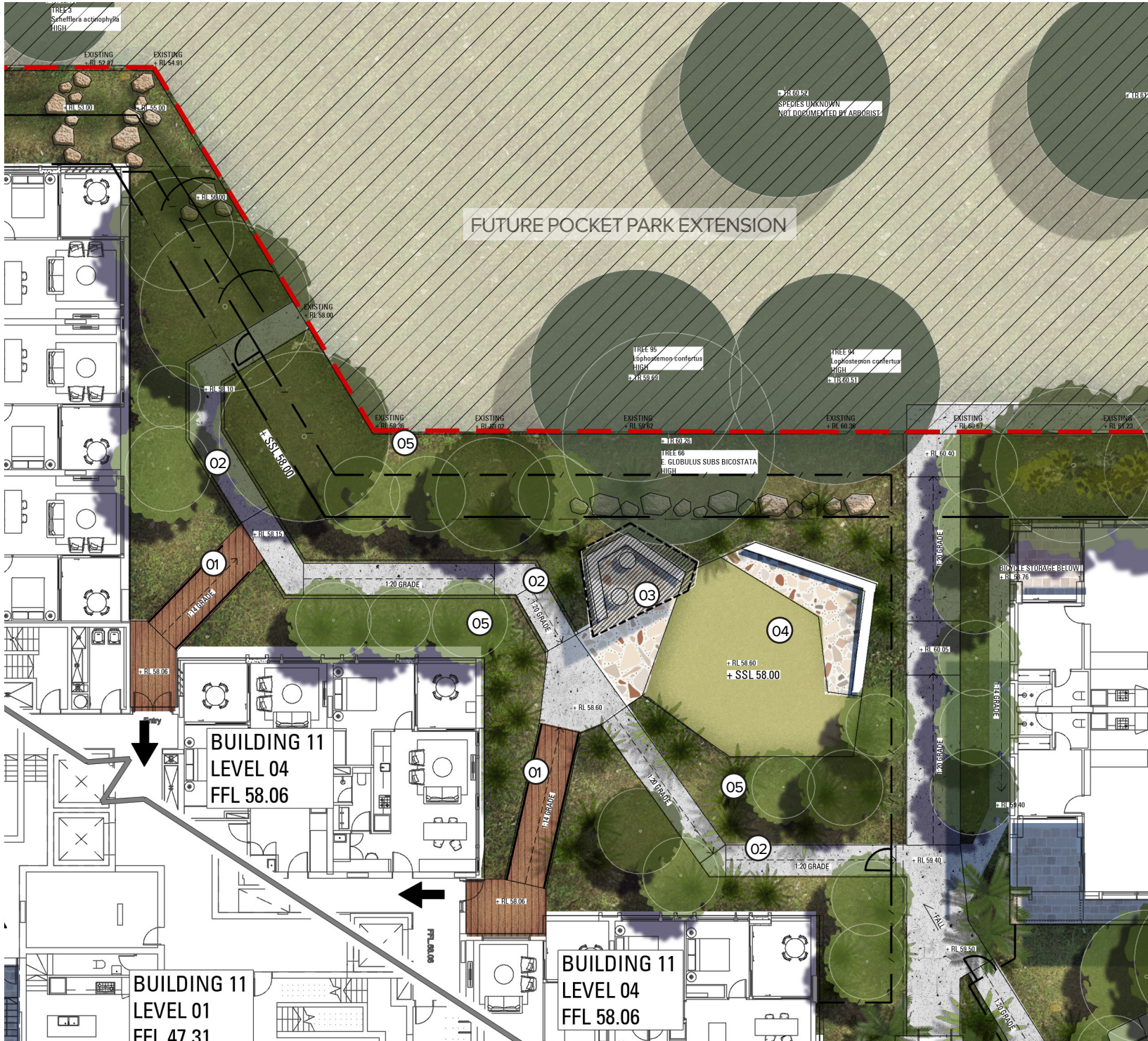
Fern Track and Pocket Park

Legend

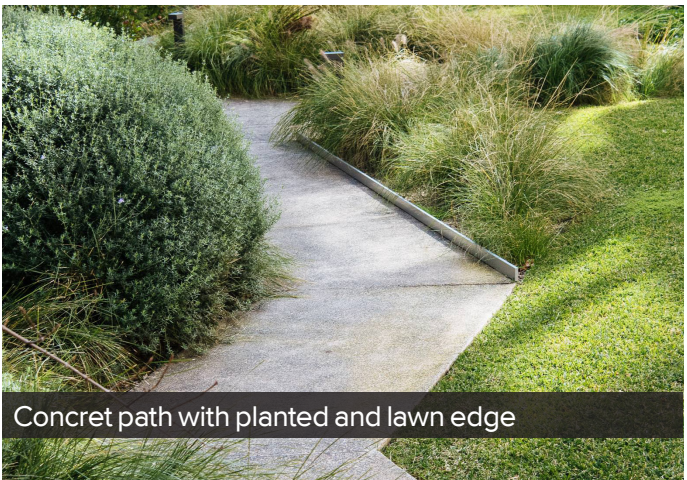
- 01 Raised boardwalk above undercroft planting
- 02 Main pathway on grade
- 03 Communal seating beneath pergola
- 04 Open lawn space and sunlounge
- 05 Low plantings mounded on top of basement

1:250 @ A3 0 1 2 4 6 10m

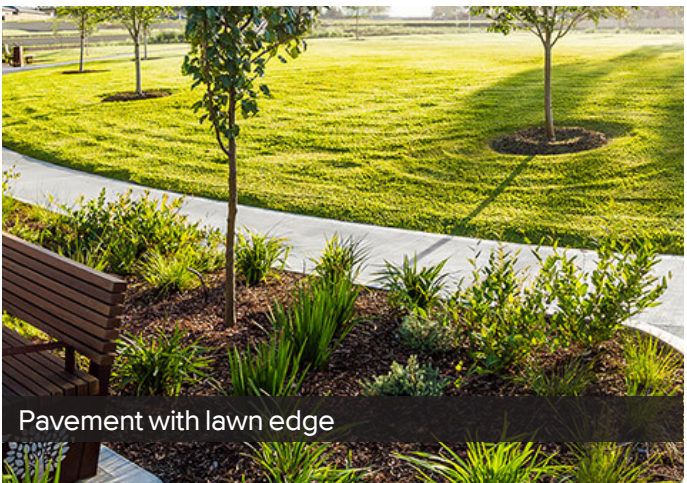
Key Plan



Raised mesh deck to building



Concret path with planted and lawn edge



Pavement with lawn edge

Design - Longitudinal Section A

1:250 @ A3 0 1 2 4 6 10m



Key Plan



Legend

- ① Communal lawn space with generous planting buffers
- ② Raised boardwalk around existing tree
- ③ Garden rooms with integrated palm planting and rock features
- ④ Cascade waterfall element over basement

Design - Longitudinal Section B

1:250 @ A3

0 1 2 4 6 10m



Key Plan



Legend

- ① Entry to building at Holdsworth Avenue with border planting and existing street trees
- ② Communal pool area between buildings
- ③ Lush planting to background with palms and mixed native trees
- ④ Private terraces to Canberra Avenue

Design - Longitudinal Section C

1:150 @ A3 0 0.5 1 2 4 6m



Key Plan



Legend

- 01 Raised boardwalk set within verdant planting buffer
- 02 Communal lawn space to undercroft edge
- 03 On grade access pavement
- 04 Fern plantings to height of boardwalk to have immersive experience within canopy

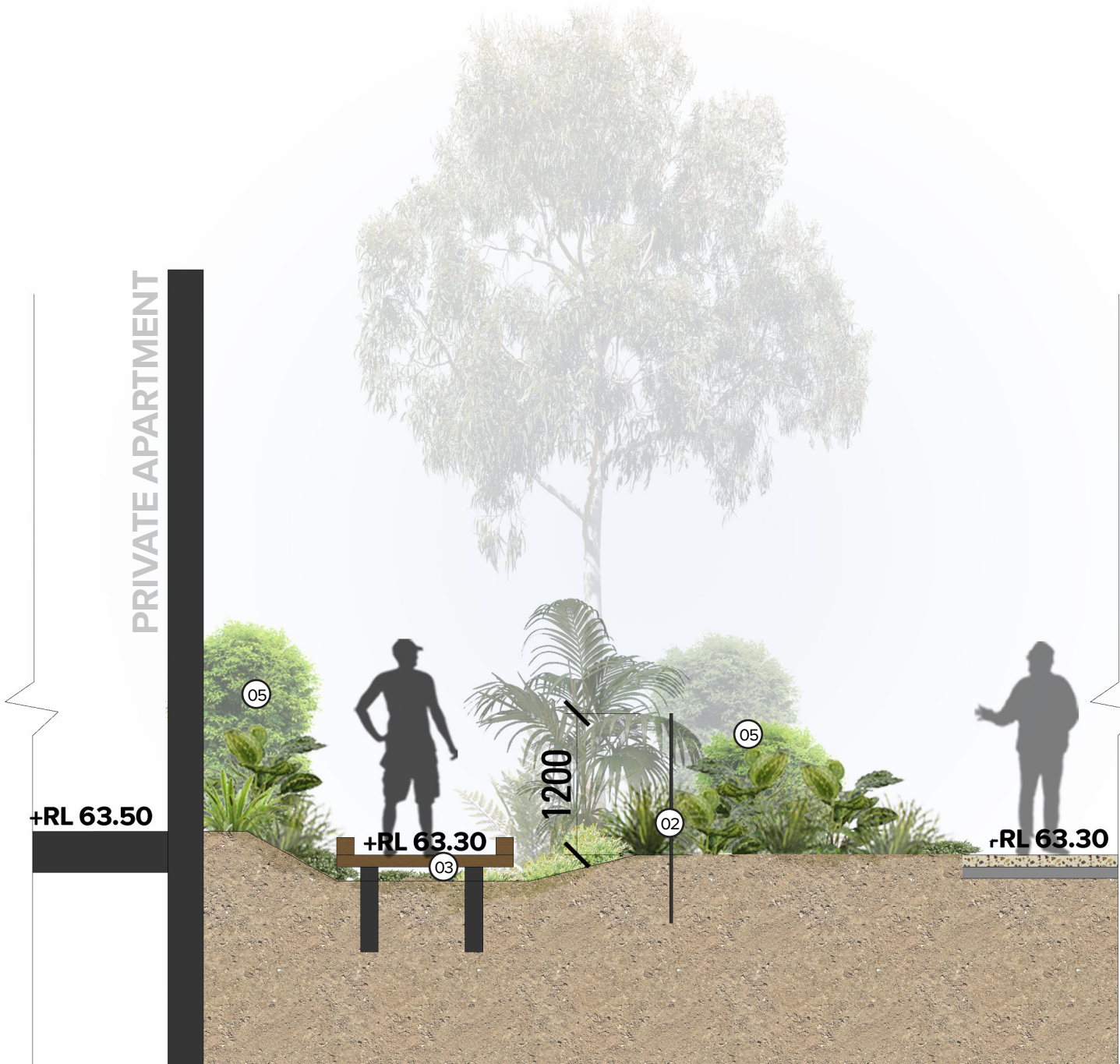
Design - Green Spine - Sectional Study



- 01 Poolside decking walkway raised above soil level
- 02 Pool fencing nestled within planting
- 03 Raised pedestrian walkway above planting to minimise extent of impervious surfacing
- 04 Privacy screening nestled within planting to residential apartments
- 05 Screen planting provided to residential apartment facade



SECTION E 1:50 @ A3 0 0.25 0.5 1.0 1.5 2.0m



SECTION F 1:50 @ A3 0 0.25 0.5 1.0 1.5 2.0m

Design - Green Spine - Sectional Study



- 01 Privacy screening nestled within planting to residential apartments
- 02 Screen planting provided to residential apartment facade
- 03 Dense native plantings in deep soil zone adjacent to retained significant tree
- 04 Communal footpath visually hidden from apartments through dense buffer planting



SECTION G 1:50 @ A3 0 0.25 0.5 1.0 1.5 2.0m



SECTION H 1:50 @ A3 0 0.25 0.5 1.0 1.5 2.0m

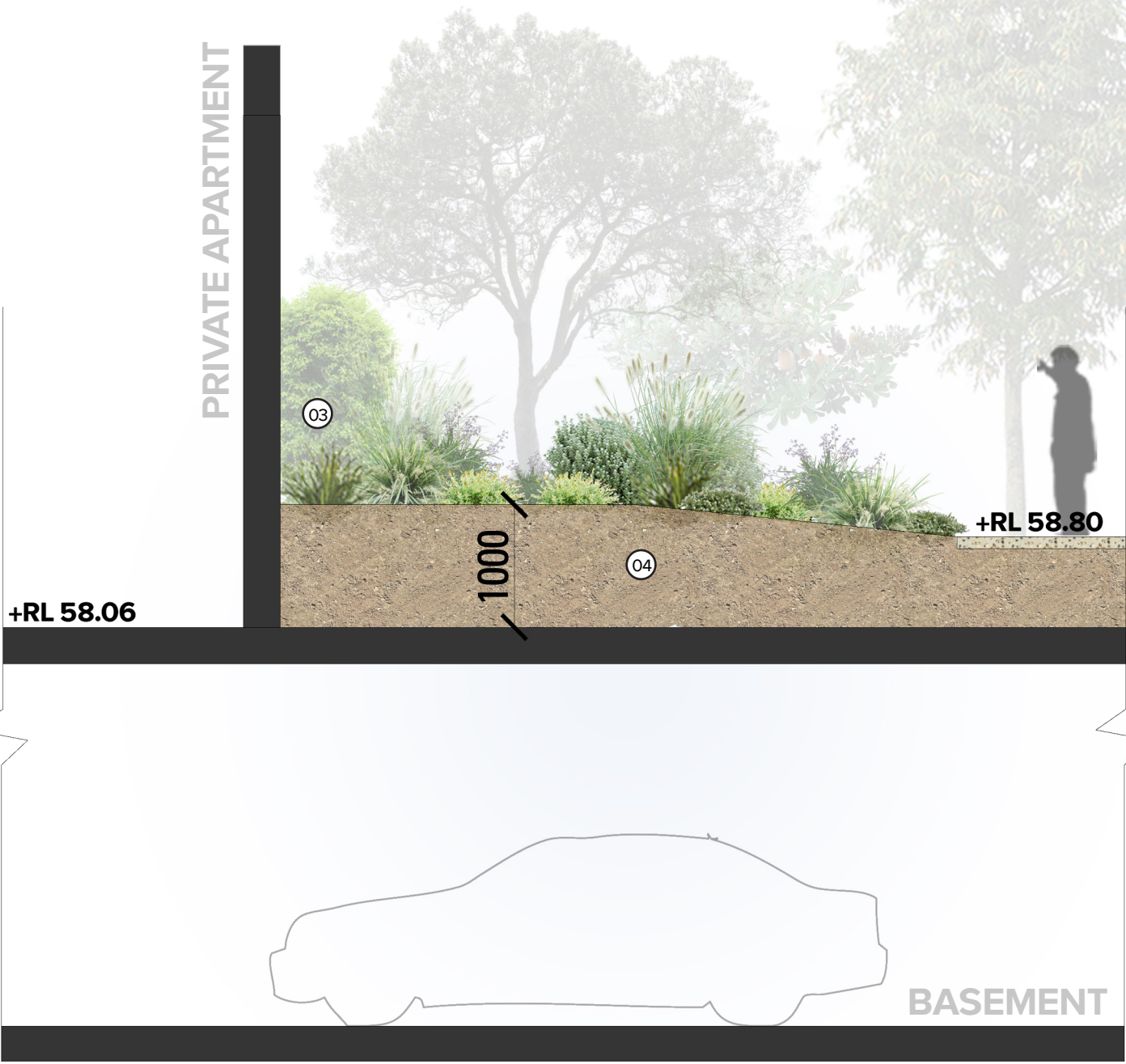
Design - Green Spine - Sectional Study



- 01 Communal lounge element within plaza with adjacent planting embankment
- 02 Privacy screening nestled within planting to residential apartments
- 03 Screen planting provided to residential apartment facade
- 04 Soil mounded to 1m height on top of basement area



SECTION I 1:50 @ A3 0 0.25 0.5 1.0 1.5 2.0m

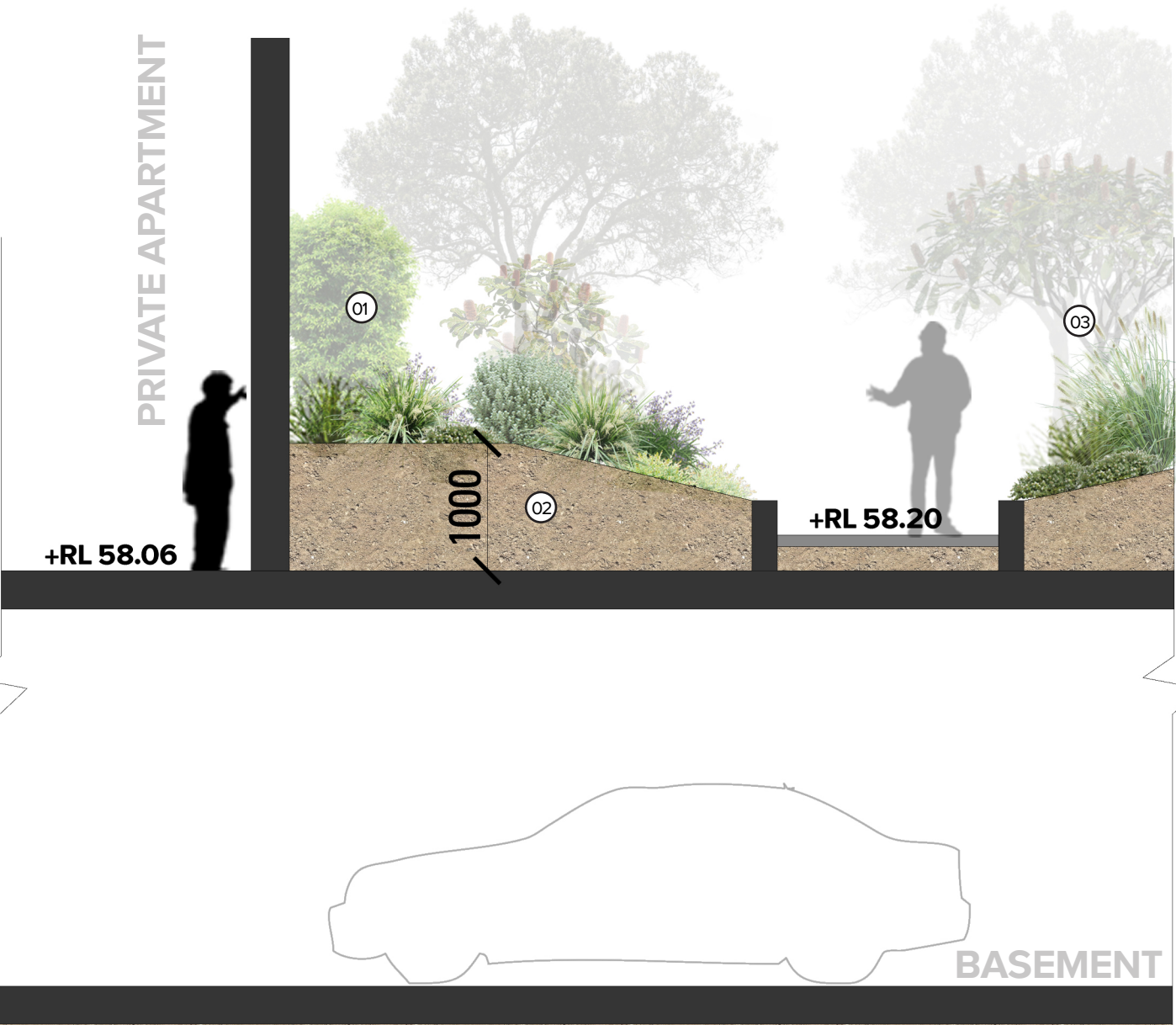


SECTION J 1:50 @ A3 0 0.25 0.5 1.0 1.5 2.0m

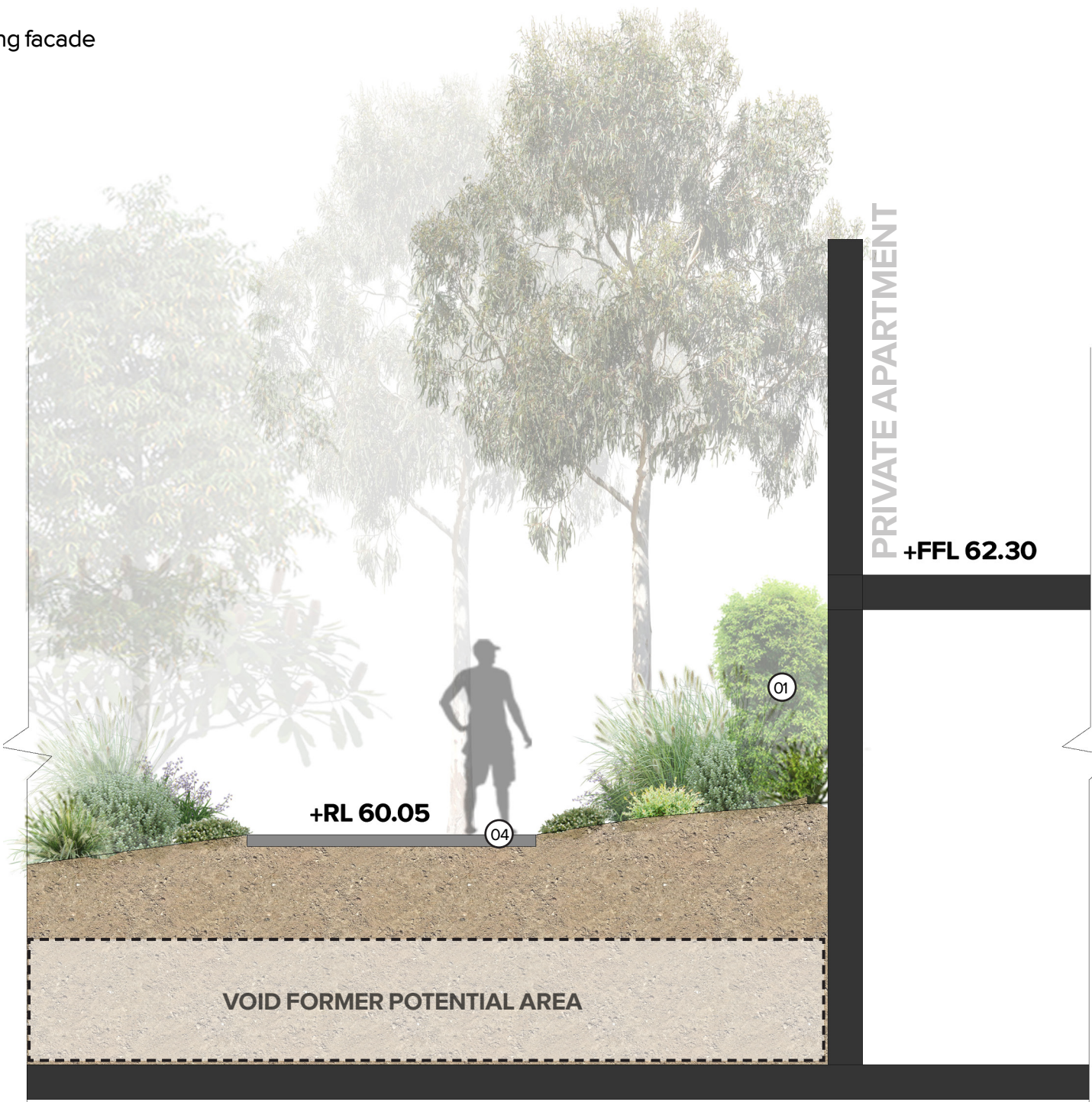
Design - Green Spine - Sectional Study



- 01 Screen planting provided to residential apartment facade
- 02 Soil mounded to 1m height on top of basement area
- 03 Smaller tree plantings provided to areas on top of basement
- 04 Public through site link with native buffer plantings to building facade



SECTION K 1:50 @ A3 0 0.25 0.5 1.0 1.5 2.0m



SECTION L 1:50 @ A3 0 0.25 0.5 1.0 1.5 2.0m

Rooftop Masterplan

1:500 @ A3 0 2 5 10 15 20m



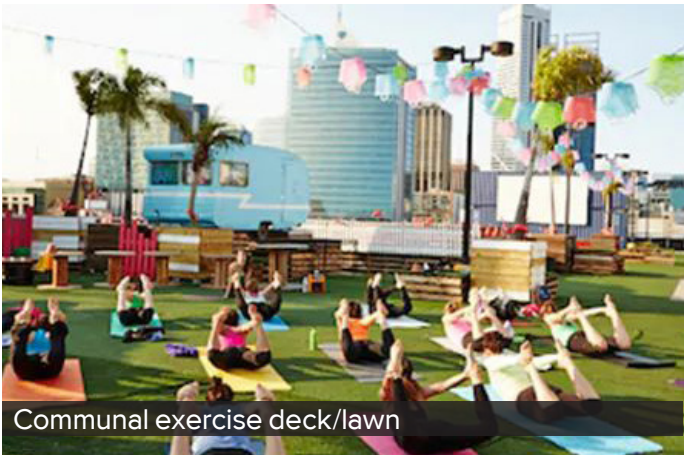
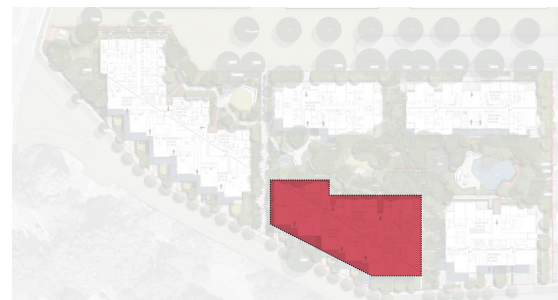
Building 09 Rooftop

Legend

- ① Garden nooks for study and work from home opportunities
- ② Exercise lawn / flexible space
- ③ Bar seating to outlook edge
- ④ Communal BBQ facilities
- ⑤ Dining tables
- ⑥ Amenities block
- ⑦ Flexible outdoor cinema zone

1:250 @ A3 0 1 2 4 6 10m

Key Plan



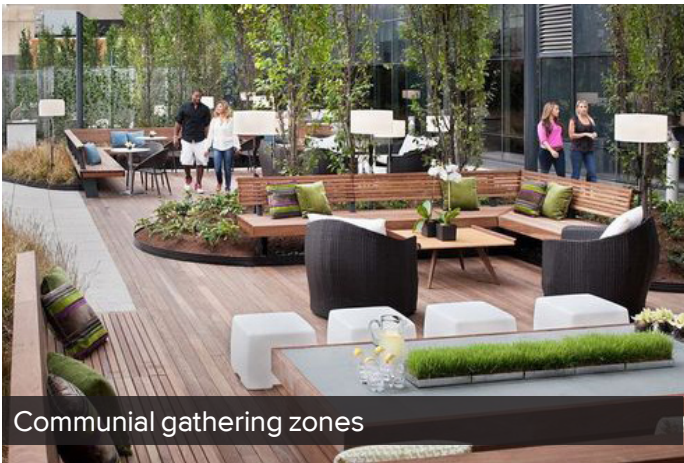
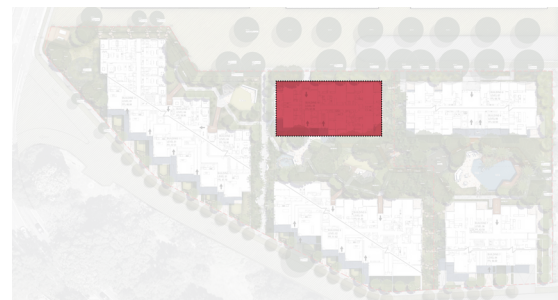
Building 10 Rooftop

Legend

- ① Garden nooks for study and work from home opportunities
- ② Exercise lawn / flexible space
- ③ Bar seating to outlook edge
- ④ Communal BBQ facilities
- ⑤ Dining tables
- ⑥ Amenities block
- ⑦ Flexible outdoor cinema zone

1:250 @ A3 0 1 2 4 6 10m

Key Plan



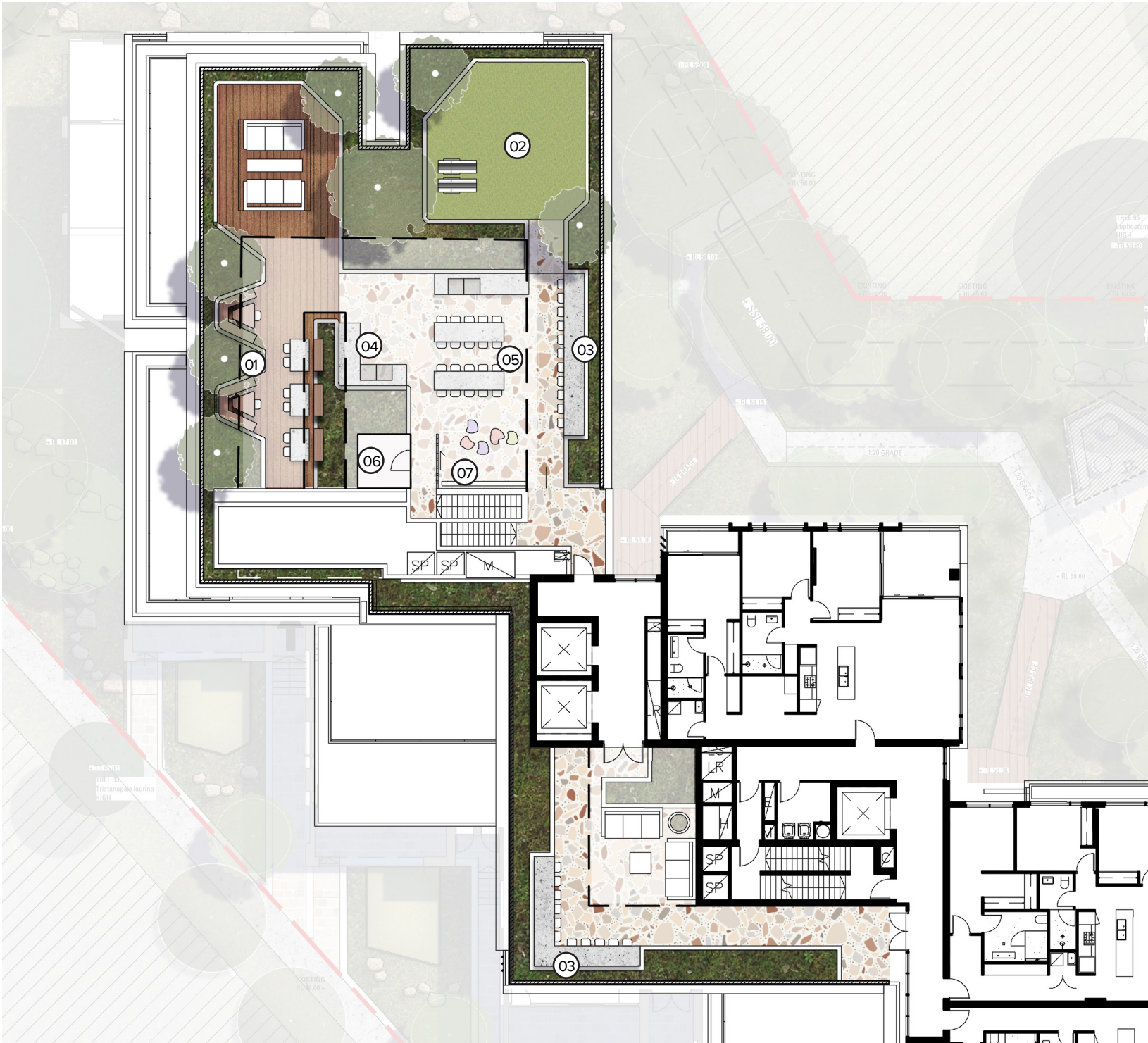
Building 11 Rooftop

Legend

- 01 Garden nooks for study and work from home opportunities
- 02 Exercise lawn / flexible space
- 03 Bar seating to outlook edge
- 04 Communal BBQ facilities
- 05 Dining tables
- 06 Amenities block
- 07 Flexible outdoor cinema zone

1:250 @ A3 0 1 2 4 6 10m

Key Plan

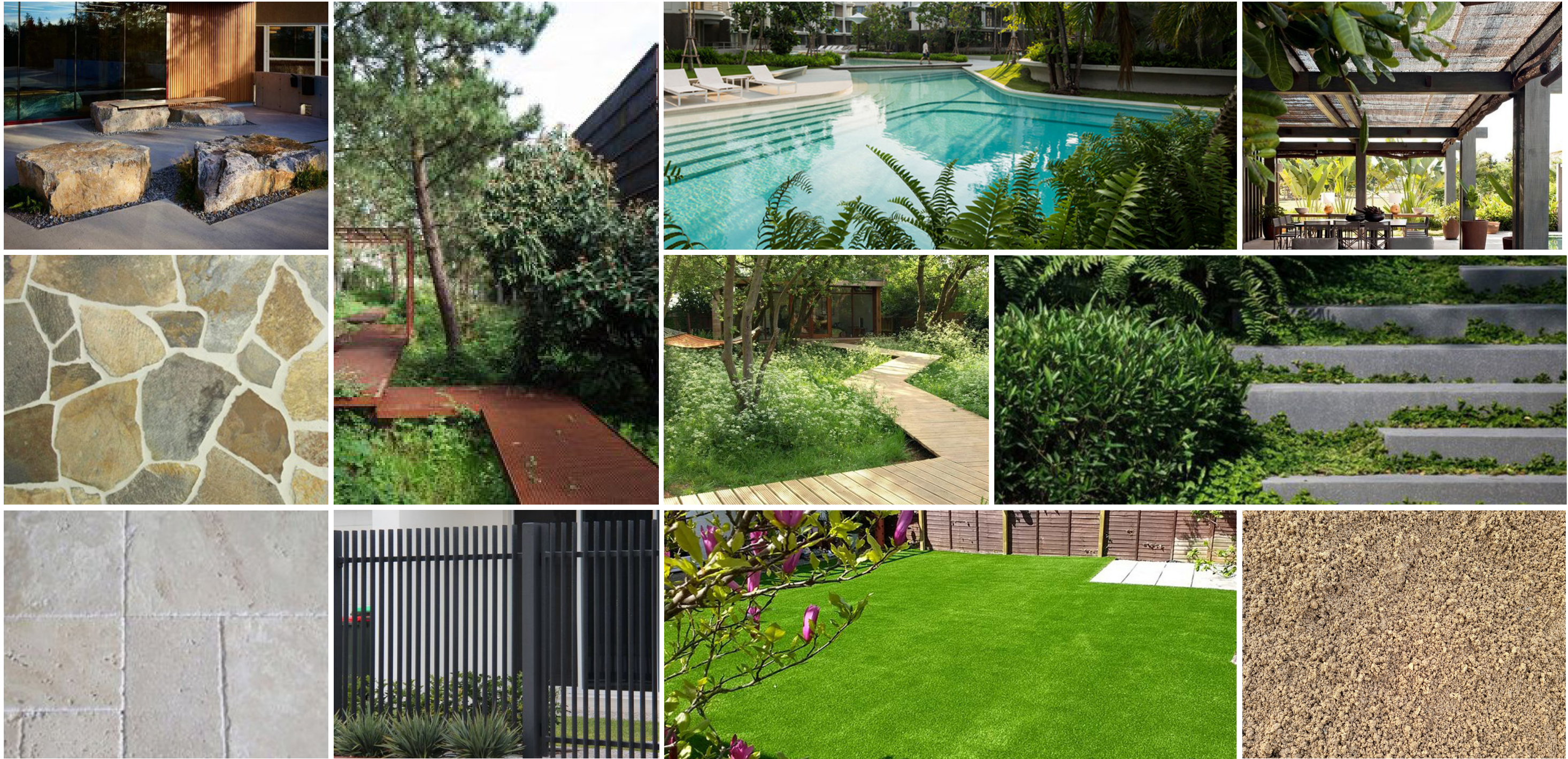


5.0

Landscape Strategies



Materials Palette



Planting Typologies

1:500 @ A3 0 2 5 10 15 20m



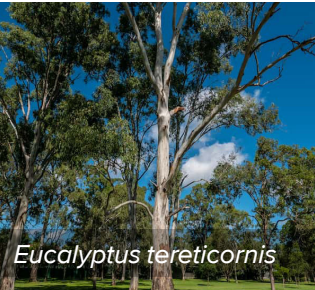
Harbour Connection



Species here are proposed to be of a mix which captures the native plantings along the trail which starts accross River Road.

Southern facing and at a low point on site, the planting here will be capable of absorbing water flows and runoff from the development, with trees, shrubs and grasses being a mix of water loving species native to the area. In locations which will not become water-logged, a mix of drier shrubs, grasses and groundcovers are proposed to form feature plantings and establish a generous green edge buffer to the busy road.

Trees

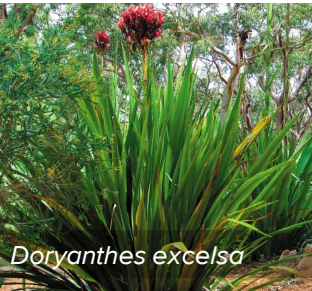


Elaeocarpus reticulatus

Eucalyptus saligna

Eucalyptus tereticornis

Shrubs



Baeckea imbricata

Bauera rubioides

Dodonaea viscosa

Doryanthes excelsa

Grevillea lavandulacea

Pultenaea flexilis

Zieria smithii

Grasses



Carex appressa

Lomandra longifolia

Eragrostis brownii

Patersonia glabrata

Austrostipa ramosissima

Baumea juncea

Ficinia nodosa

Groundcovers



Carpobrotus glaucescens

Isotoma fluviatilis

Sunny

Undercroft / Shade

Wetland

Ridgetop



Soil depths here are shallow due to the positioning of the underground basement.

The highest point on site, the area will feature plantings which mimic the ridgetop typologies common in the Lane Cove National Park. These plantings are inclusive of smaller and lower trees which require less soil, exposed shrubs adaptive to tougher environments, and a mix of grasses and groundcovers which thrive within low soil environments.

Once established, the mix of shrubbery and grasses will provide a dense buffer to the private residences within the development.

Trees



Acacia floribunda

Acacia irrorata

Backhousia myrtifolia

Glochidion ferdinandi

Shrubs



Correa reflexa

Dodonaea triquetra

Dodonaea viscosa

Grevillea sericea

Westringia fruticosa

Xanthorrhoea johnsonii

Grasses



Carex appressa

Danthonia longifolia

Dichelachne crinita

Lomandra longifolia

Groundcovers



Ajuga reptans purpurea

Carpobrotus glaucescens

Isotoma fluviatilis

Viola hederacea

Grove



At the heart of the site will be a canopy dense grove which will be reminiscent of the luscious forest types found in the surrounding bushland.

Tall and expansive trees with large trunks and a generous canopy will provide for a unique user experience within the grove, a space which sheltered in summer and largely protected from wind in the winter. Immersion within the central native grove provides an array of educational offerings about our native habitats, with layers of shrubs, ferns, grasses and groundcovers forming a thick and ecologically rich understory.



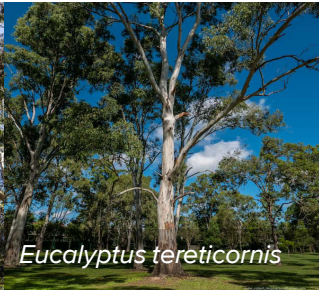
Pool



Surrounding the pool, the planting typology begins to integrate more species which a person would familiarise themselves as being within a pool setting.

Tall native trees will surround the pool grounds, nestled within native tree plantings setback to the pedestrian pathways and residential edges. Being north facing, this area of site will acquire the most direct sunlight and therefore the shrub layer will begin to display plants which enjoy full to part-sun environments. Furthermore, the extensive deep soil area within this zone will allow for the planting of significant sized trees, ferns and shrubs.

Trees & Palms



Shrubs



Ferns



Grasses



Groundcovers



Gully



Within the long and narrow corridors between the development footprints, the gully typology will consist of plants with a strong affiliation to water and runoff, aswell as ferns which can tolerate low light environments.

Accomodating significant level changes, groundcovers within here must be able to stabilise soil and colonise a significant area. A mix of native ferns will form the upper story of planting, with smaller plants to the understory and large tree ferns to spread canopy in the upper strata.



Streetscape



The streetscape typology will provide a mix of shrubs and grasses to form a varied green buffer in terms of height and texture to form boundary between the development and the street.

Native grasses will be planted against the footpaths along the site boundary, and a mix of different shrubs will be planted further from the street towards the development.



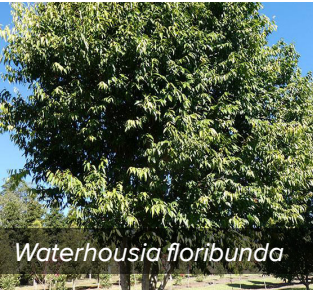
Rooftops



The rooftop levels will feature a compact palette of species which display an array of important flowing qualities for the purpose of increasing the habitat of higher flying pollinators.

Native small trees suitable for rooftop environments have been proposed to provide an element of shelter for the users of the rooftop spaces, as well as to provide an attractive feature element within the planter beds. A mix of shrubs will form the intermediate layer, and small native grasses will fill to the near edges of the planter walls. Groundcover plants will also be placed in strategic locations to fill in areas of garden bed, and to provide attractive trailing qualities over walls to soften the appearance of hardscape.

Trees



Waterhousia floribunda



Corymbia 'Wildfire'



Ceratopetalum gummiferum

Shrubs



Anigozanthus 'Big Red'



Correa reflexa



Crowea saligna



Dietes grandiflora



Grevillea junipera

Grasses



Dianella caerulea



Liriope muscari



Patersonia sericea



Poa poiiformis 'Kingsdale'

Groundcovers



Hibbertia scandens



Scaevola 'Mauve Clusters'



Hardenbergia violacea

Planting Schedule

Ground Floor

CODE	BOTANIC NAME	COMMON NAME	MATURE SIZE (h x w) (m)	PROPOSED POT SIZE	QUANTITY
TREES AND PALMS					
Af	<i>Acacia floribunda</i>	Gossamer Wattle	6 x 3	75L	4
Ai	<i>Acacia irrorata</i>	Green Wattle	12 x 5	75L	4
Ac	<i>Angophora costata</i>	Smooth bark apple	15 x 10	200L	9
Afl	<i>Angophora floribunda</i>	Rough-bark Apple	15 x 10	200L	7
Acu	<i>Archontophoenix cunninghamiana</i>	Bangalow Palm	25 x 2.5	75L	11
Bm	<i>Backhousia myrtifolia</i>	Coast Banksia	15 x 6	75L	19
Cgu	<i>Corymbia gummifera</i>	Red Bloodwood	20 x 10	200L	10
Er	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	15 x 10	75L	12
Eg	<i>Eucalyptus globoidea</i>	White Stringybark	10 x 8	200L	11
Es	<i>Eucalyptus saligna</i>	Sydney Blue Gum	30 x 10	200L	10
Et	<i>Eucalyptus tereticornis</i>	Forest Red Gum	20 x 10	200L	7
Gf	<i>Glochidion ferdinandi</i>	Cheese Tree	8 x 5	75L	18
La	<i>Livistona australis</i>	Cabbage Tree Palm	20 x 6	75L	11
Tl	<i>Tristaniopsis laurina</i>	Water Gum	15 x 6	75L	18
FERNS					
Aa	<i>Asplenium australasicum</i>	Birds Nest Fern	1.3 x 0.8	200mm	435
Bc	<i>Blechnum cartilagineum</i>	Soft Fern	1.5 x 1.5	200mm	62
Ca	<i>Cyathea australis</i>	Rough Tree Fern	6 x 5	2m trunk size	17
Da	<i>Dicksonia antarctica</i>	Scaly Tree Fern	9 x 4	2m trunk size	10
Das	<i>Doodia aspera</i>	Prickly Rasp Fern	1 x 1	200mm	386
Ds	<i>Davallia solida</i>	Hares Foot Fern	0.4 x 0.6	200mm	470
Pn	<i>Psilotum nudum</i>	Whisk Fern	0.5 x 0.3	200mm	472
SHRUBS					
Afa	<i>Acacia falcata</i>	Sickle Wattle	5 x 1	150mm	101
Bim	<i>Baeckea imbricata</i>	Heath Myrtle	2 x 2	150mm	75
Bl	<i>Boronia ledifolia</i>	Sydney Boronia	1 x 1	150mm	52
Br	<i>Bauera rubioides</i>	River Rose	2.5 x 1.5	150mm	157
Cf	<i>Cordyline fruticosa</i>	Purple Prince	1.5 x 1	300mm	268
Cr	<i>Correa reflexa</i>	Native fuchsia	3 x 1.5	150mm	147
De	<i>Doryanthes excelsa</i>	Gymea Lily	3.5 x 2	300mm	153
Dt	<i>Dodonaea triquetra</i>	Large leaf hop bush	2 x 2	150mm	184
Dv	<i>Dodonaea viscosa</i>	Common Hop Bush	2 x 2	300mm	378
Gl	<i>Grevillea lavandulacea</i>	Lavender Grevillea	3 x 1	150mm	344
Gs	<i>Grevillea sericea</i>	Pink Spider flower	1.2 x 1	150mm	131
Pf	<i>Pultenaea flexilis</i>	Yellow Pea	3 x 1.5	150mm	174
Wf	<i>Westringia fruticosa</i>	Coastal Rosemary	1.5 x 1.5	300mm	49
Xj	<i>Xanthorrhoea johnsonii</i>	Grass Tree	5 x 1.5	300mm	20
Zs	<i>Zieria smithii</i>	Sandfly Zieria	2 x 0.5	150mm	312

Ground Floor contd.

CODE	BOTANIC NAME	COMMON NAME	MATURE SIZE (h x w) (m)	PROPOSED POT SIZE	QUANTITY
GRASSES					
Ar	<i>Austrostipa ramosissima</i>	Stout Bamboo Grass	2.5 x 1.5	150mm	838
Bj	<i>Baumea juncea</i>	Tussock Swamp Twig Rush	1 x 1	150mm	838
Cap	<i>Carex appressa</i>	Tall sedge	1 x 1	150mm	411
Dc	<i>Dichelachne crinita</i>	Long Hair Plume Grass	0.6 x 0.3	150mm	411
DI	<i>Danthonia longifolia</i>	Wallaby Grass	0.8 x 0.5	150mm	411
Eb	<i>Eragrostis brownii</i>	Browns Love Grass	0.15 x 0.3	150mm	267
Fn	<i>Ficinia nodosa</i>	Knobby Club Rush	1 x 0.8	150mm	838
LI	<i>Lomandra longifolia</i>	Spiny headed mat rush	1 x 0.6	150mm	411
Ms	<i>Microlaena stipoides</i>	Weeping Grass	1 x 0.6	150mm	267
Pa	<i>Pennisetum alopecuroides</i>	Swamp Foxtail	0.9 x 0.9	150mm	267
Pg	<i>Paterosnia glabrata</i>	Leafy Purple Flag	0.6 x 0.6	150mm	267
Sa	<i>Schoenus apogon</i>	Bog Rush	0.3 x 0.15	150mm	838
GROUNDCOVERS					
Arp	<i>Ajuga reptans purpurea</i>	Bugleweed	0.6 x 0.4	150mm	418
Cg	<i>Carpobrotus glauceces</i>	Pig Face	0.2 x 2	150mm	1010
Cas	<i>Centella asiatica</i>	Swamp Pennywort	0.2 x 1	150mm	220
Cc	<i>Commelina cyanea</i>	Scurvy Weed	0.4 x 2	150mm	306
If	<i>Isotoma fluviatilis</i>	Swamp Isotoma	0.5 x 0.45	150mm	596
Vh	<i>Viola hederacea</i>	Native Violet	0.2 x 0.5	150mm	621

Rooftop Levels

TREES					
WGA	<i>Waterhausia floribunda</i> 'Green Avenue'	Weeping Lilly Pilly	8 x 5	75L	7
CW	<i>Corymbia ficifolia</i> 'Wildfire'	Wildfire Gum	6 x 3	75L	11
Cg	<i>Ceratopetalum gummiferum</i>	NSW Christmas Bush	4 x 2	75L	8
SHRUBS					
Abr	<i>Anigozanthus 'Big Red'</i>	Kangaroo Paw	1.5 x 1.5	200mm	52
Cr	<i>Correa reflexa</i>	Native fuchsia	1 x 1	200mm	120
Cs	<i>Crowea saligna</i>	Willow leaved crowea	1 x 1.5	300mm	105
Dg	<i>Dietes grandiflora</i>	Native Iris	1.5 x 1	150mm	91
Gj	<i>Grevillea juniperina</i>	Juniper-leaf Grevillea	1.5 x 1.5	200mm	53
GRASSES & RUSHES					
Dc	<i>Dianella caerulea</i>	Flax Lily	0.6 x 0.6	150mm	76
Lm	<i>Liriope muscari</i>	Lilyturf	0.5 x 0.5	150mm	76
Ps	<i>Paterosnia sericea</i>	Silky Purple Flag	0.4 x 0.4	150mm	76
Pp	<i>Poa poiformis</i> 'Kingsdale'	Blue Tussock Grass	0.5 x 0.5	150mm	76
GROUNDCOVERS & CLIMBERS					
Hs	<i>Hibbertia scandens</i>	Snake Vine	0.15 x spreading	150mm	153
Hv	<i>Hardenbergia violacea</i>	False Sarsaparilla	0.25 x spreading	150mm	231
Smc	<i>Scaevola 'Mauve Clusters'</i>	Fan Flower	0.25 x spreading	150mm	116

6.0

Addendum Drawings



LEGEND

- SITE BOUNDARY
- EXISTING TREES TO BE REMOVED
- EXISTING TREES TO BE RETAINED
- PROPOSED TREE PLANTING
- PROPOSED SHRUB AND ACCENT PLANTING
- PROPOSED GROUNDCOVER PLANTING
- PROPOSED CONCRETE PAVING
- PROPOSED UNIT PAVING
- PROPOSED DECOMPOSED GRANITE PAVING
- PROPOSED TIMBER DECKING
- PROPOSED RETAINING WALL
- PROPOSED FENCING

WIP	DA DRAFT	BM	MB	26.05.2021
A	Development Application	BM	MB	04.05.2021
B	Development Application	VO	MB	03.12.2021
Issue	Revision Description	Drawn	Check	Date

Not for Construction

Project
TOPSPRING ST LEONARDS
21-41 Canberra Ave and 18-32 Holdsworth Ave
St Leonards / New South Wales

Development Application

Client



Drawing No. L-100 Drawing Name LANDSCAPE MASTERPLAN

Job No. 18-542
Issue B
Scale 1:300 @ A1
0 3 6 9 18m

Sydney, Suite 76, Jones Bay
Wharf, 26-32 Pirrama Road,
Pyrmont NSW 2009
E:sydney@arcadia.com.au
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|-------|-------------------------|-------|-------|------------|
| WIP | DA DRAFT | BM | MB | 26.05.2021 |
| A | Development Application | BM | MB | 04.06.2021 |
| B | Development Application | VO | MB | 03.12.2021 |
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| Issue | Revision Description | Drawn | Check | Date |

Project
TOPSPRING ST LEONARDS
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St Leonards / New South Wales



Job No. 18-542
Issue B
Scale 1:100 @ A1

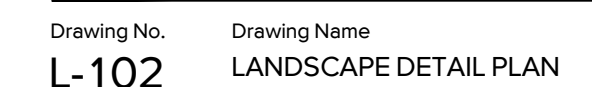


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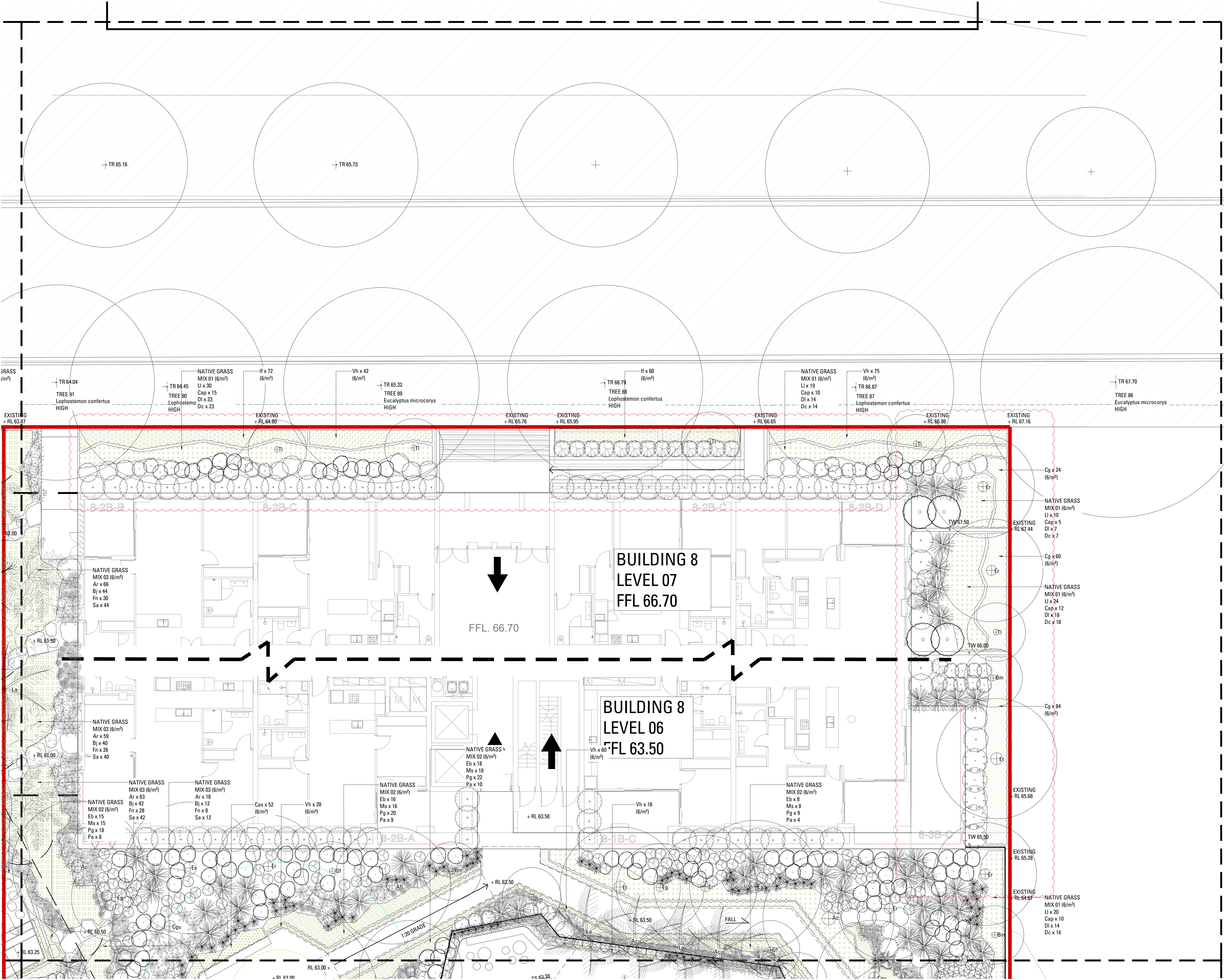
Development Application

Client



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- LEGEND
- SITE BOUNDARY
 - EXISTING TREES TO BE REMOVED
 - EXISTING TREES TO BE RETAINED
 - PROPOSED TREE PLANTING
 - PROPOSED SHRUB AND ACCENT PLANTING
 - PROPOSED GROUNDCOVER PLANTING
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 - PROPOSED UNIT PAVING
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 - PROPOSED RETAINING WALL
 - PROPOSED FENCING

WIP	DA DRAFT	BM	MB	26.05.2021
A	Development Application	BM	MB	04.05.2021
B	Development Application	VO	MB	03.12.2021
Issue	Revision Description	Drawn	Check	Date

Not for Construction

Project
TOPSPRING ST LEONARDS
21-41 Canberra Ave and 18-32 Holdsworth Ave
St Leonards / New South Wales

Development Application

Client



Drawing No. L-103
Drawing Name LANDSCAPE DETAIL PLAN

Job No. 18-542
Issue B
Scale 1:100 @ A1
0 2 3 4 5m

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LEGEND

- SITE BOUNDARY
- EXISTING TREES TO BE REMOVED
- EXISTING TREES TO BE RETAINED
- PROPOSED TREE PLANTING
- PROPOSED SHRUB AND ACCENT PLANTING
- PROPOSED GROUNDCOVER PLANTING
- PROPOSED CONCRETE PAVING
- PROPOSED UNIT PAVING
- PROPOSED DECOMPOSED GRANITE PAVING
- PROPOSED TIMBER DECKING
- PROPOSED RETAINING WALL
- PROPOSED FENCING

WIP	DA DRAFT	BM	MB	26.05.2021
A	Development Application	BM	MB	04.06.2021
B	Development Application	VO	MB	03.12.2021
Issue	Revision Description	Drawn	Check	Date

Not for Construction

Project
TOPSPRING ST LEONARDS
21-41 Canberra Ave and 18-32 Holdsworth Ave
St Leonards / New South Wales

Development Application

Client



Drawing No. **L-104** Drawing Name **LANDSCAPE DETAIL PLAN**

Job No. 18-542
Issue B
Scale 1:100 @ A1
0 1 2 3 4 5m

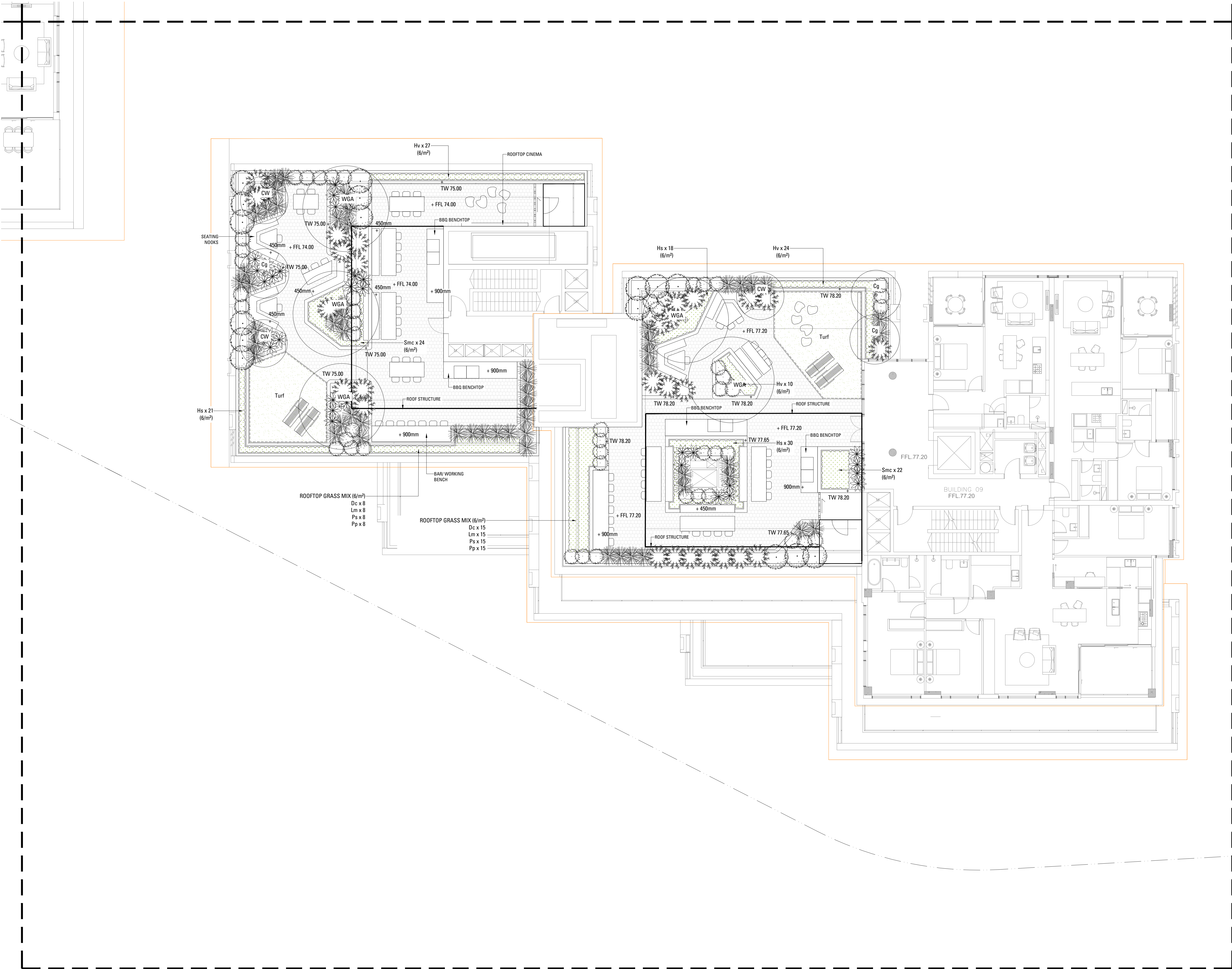
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- LEGEND
- SITE BOUNDARY
 - EXISTING TREES TO BE REMOVED
 - EXISTING TREES TO BE RETAINED
 - PROPOSED TREE PLANTING
 - PROPOSED SHRUB AND ACCENT PLANTING
 - PROPOSED GROUNDCOVER PLANTING
 - PROPOSED CONCRETE PAVING
 - PROPOSED UNIT PAVING
 - PROPOSED DECOMPOSED GRANITE PAVING
 - PROPOSED TIMBER DECKING
 - PROPOSED RETAINING WALL
 - PROPOSED FENCING

WIP	DA DRAFT	BM	MB	26.05.2021
A	Development Application	BM	MB	04.06.2021
B	Development Application	VO	MB	03.12.2021
Issue	Revision Description	Drawn	Check	Date

Not for Construction

Project
TOPSPRING ST LEONARDS
21-41 Canberra Ave and 18-32 Holdsworth Ave
St Leonards / New South Wales

Development Application

Client



Drawing No. **L-107** Drawing Name **LANDSCAPE DETAIL PLAN - BUILDING 9 ROOFTOP LEVEL 9 & 10**

Job No. 18-542 Issue B Scale 1:100 @ A1

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LEGEND

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Project
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Client



Drawing No.	Drawing Name
L-108	LANDSCAPE DETAIL PLAN - BUILDING 11 ROOFTOP LEVEL

Job No. 18-542
Issue B
Scale 1:100 @ A1

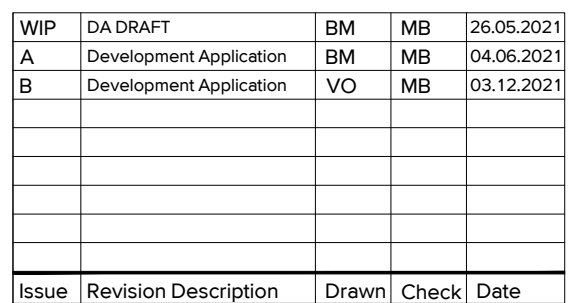


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LEGEND

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Drawing No. **L-109** Drawing Name **LANDSCAPE DETAIL PLAN -
BUILDING 10 ROOFTOP LEVEL 13**

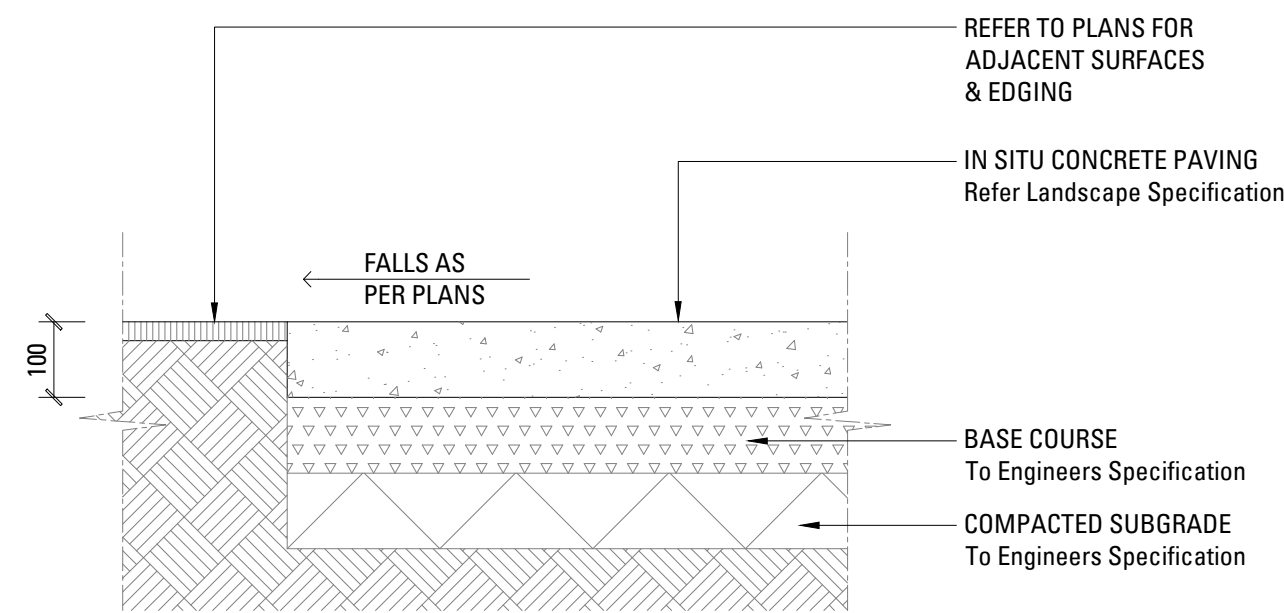
Job No. 18-542
Issue B
Scale 1:100 @ A1



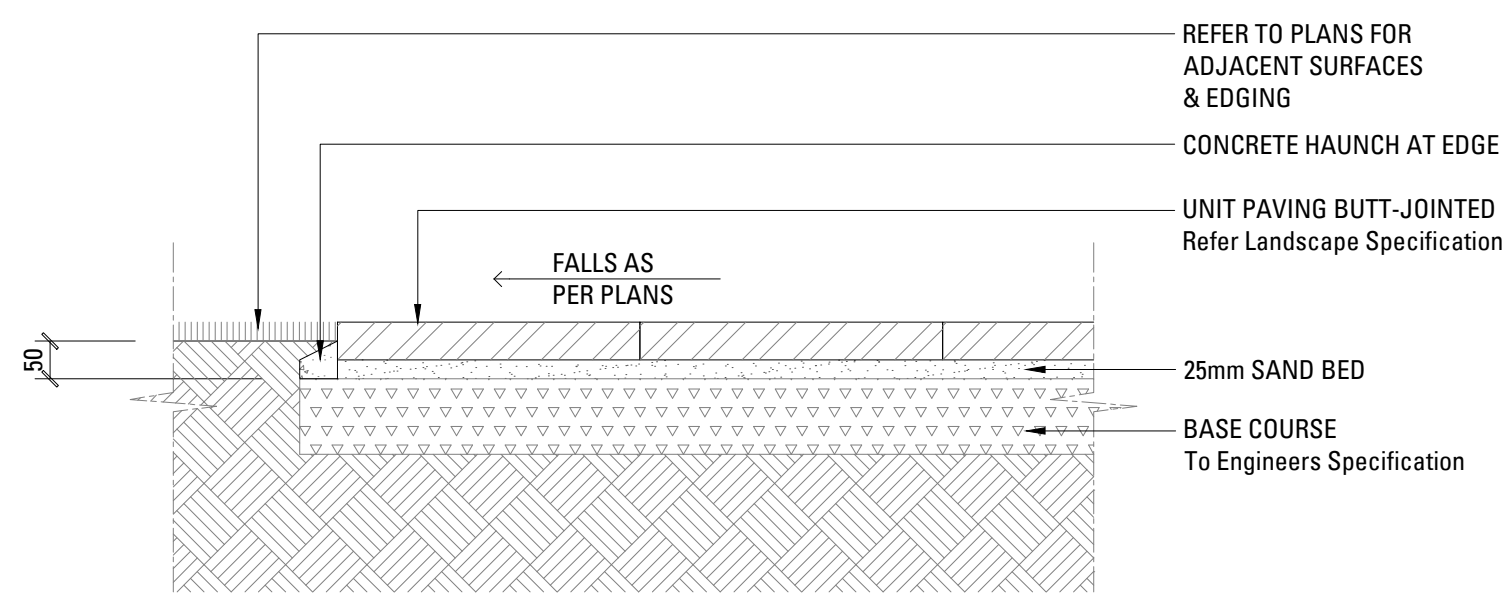
A horizontal graphic scale bar is shown below the text, with markings at 0, 1, 2, 3, 4, and 5m. To the right of the scale bar is a circular detail callout containing a small rectangular feature labeled 'Z'.

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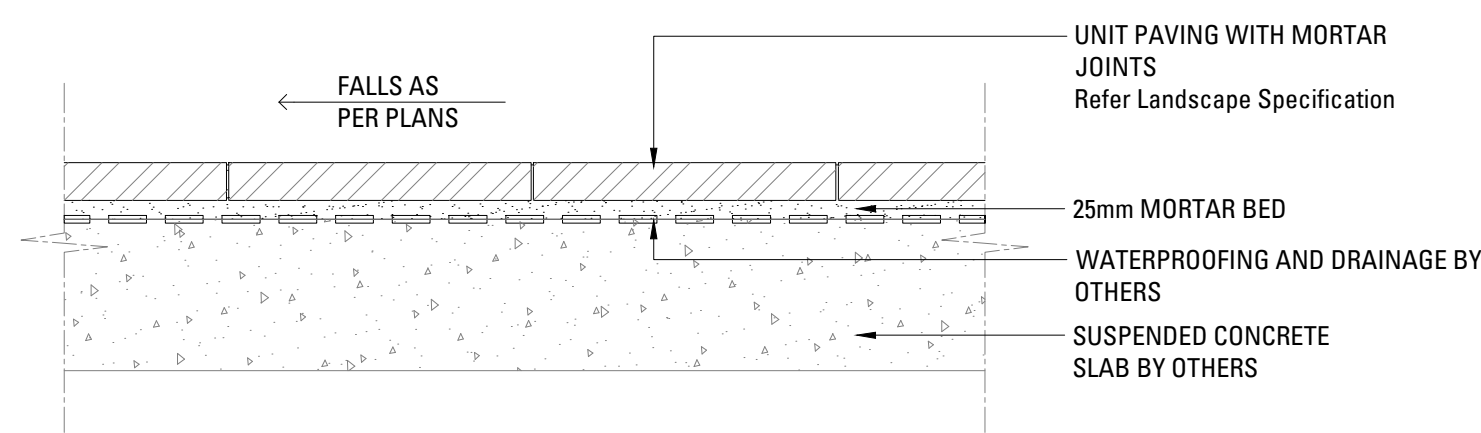
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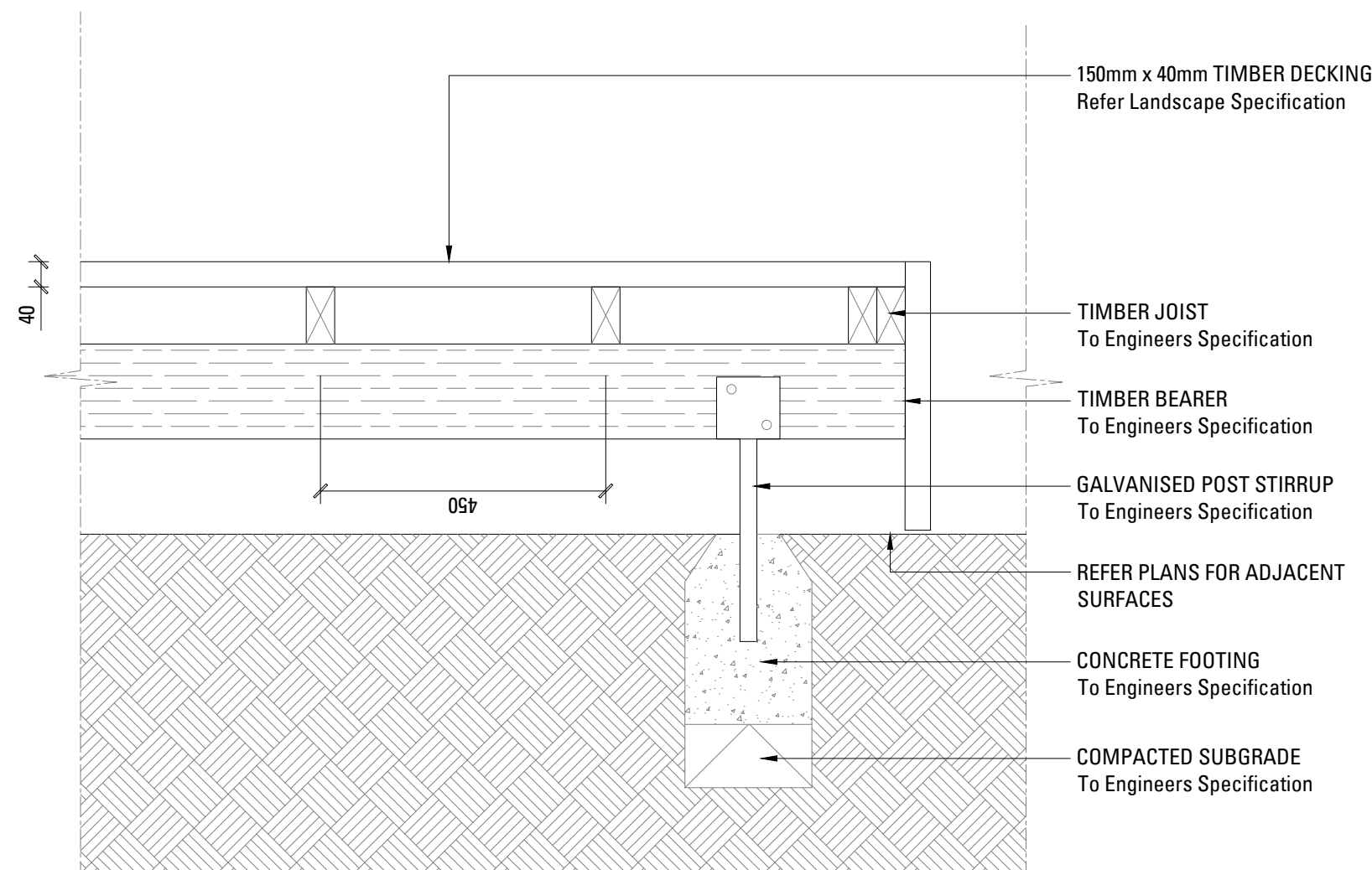
01
601 INSITU CONCRETE PAVING
SCALE 1:10



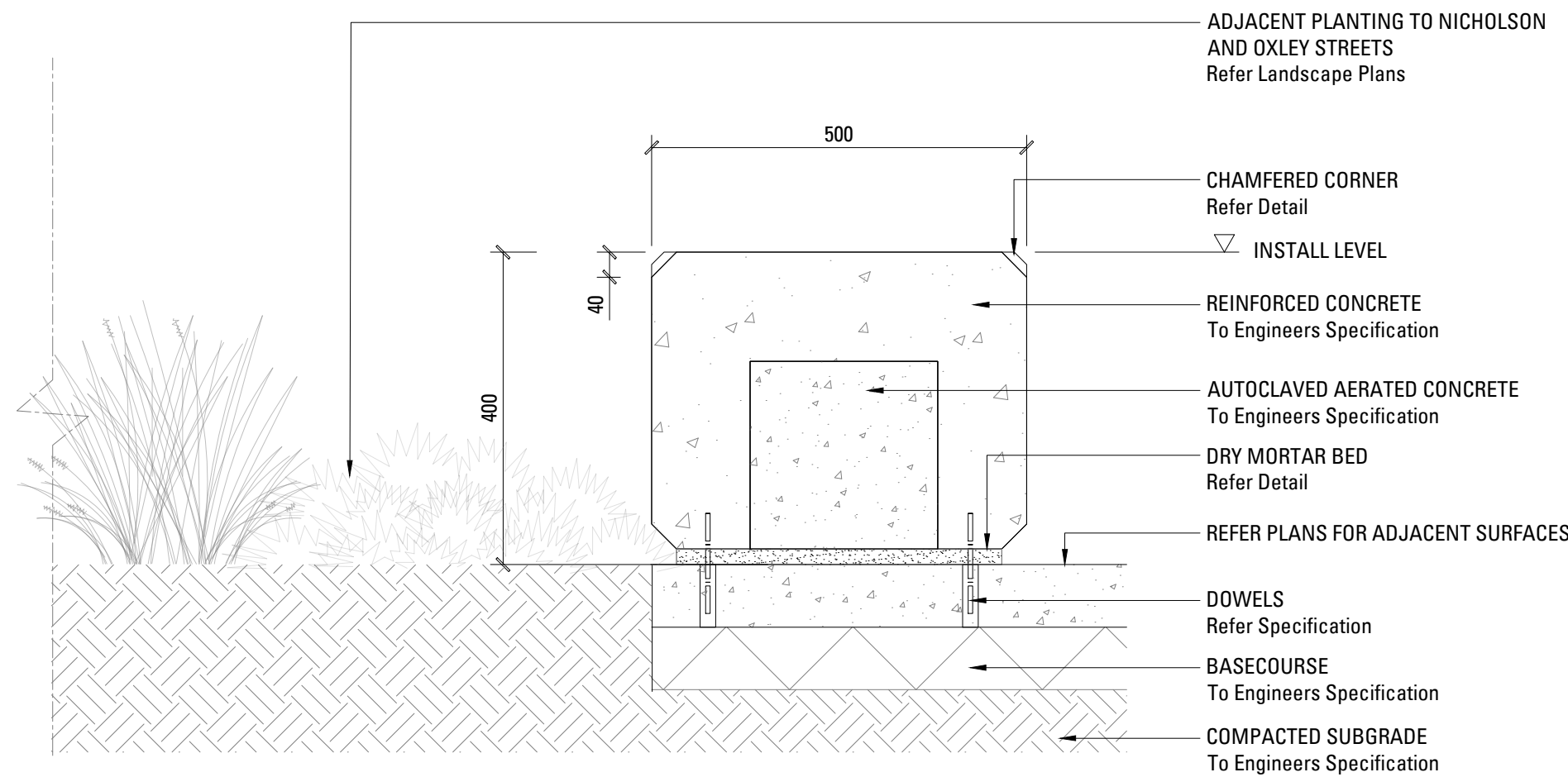
02
601 UNIT PAVERS ON GRADE
SCALE 1:10



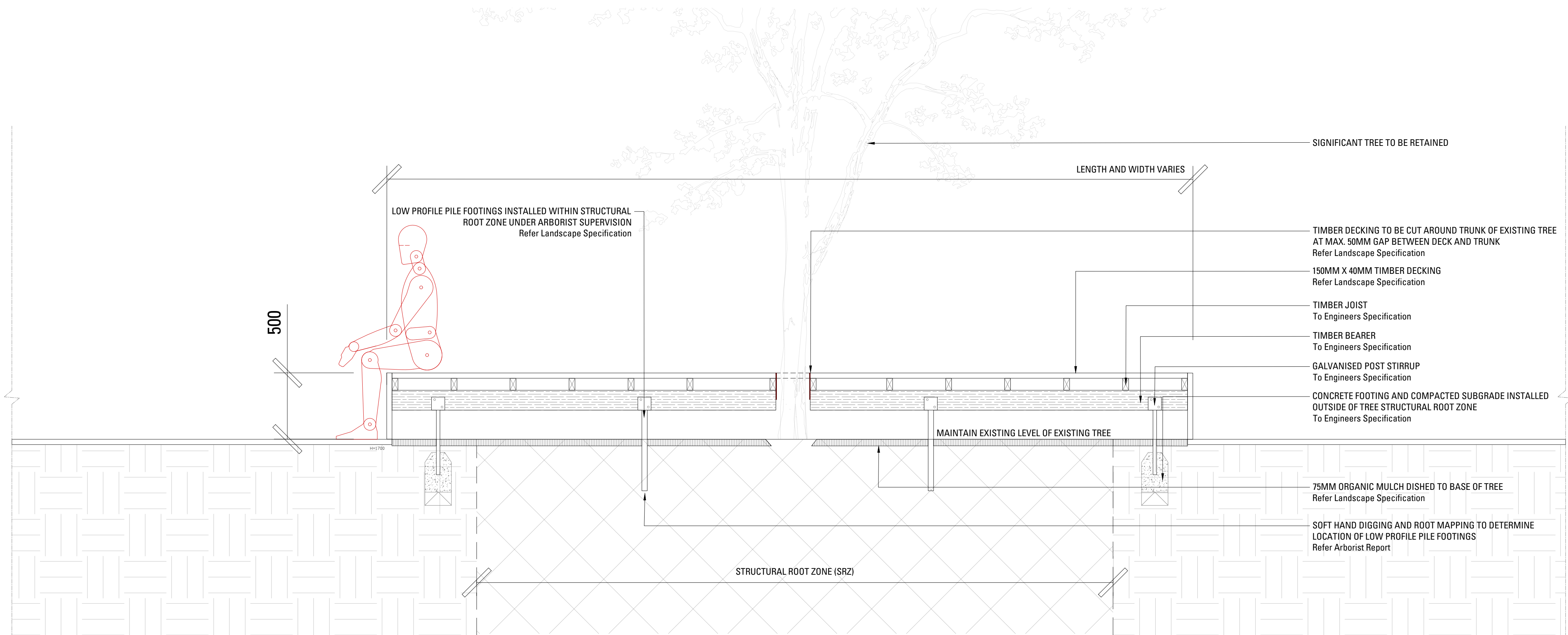
03
601 UNIT PAVERS ON SUSPENDED SLAB
SCALE 1:10



04
601 RAISED TIMBER DECKING
SCALE 1:10



06
601 INSITU CONCRETE SEATING ELEMENT - TYPICAL DETAIL
SCALE 1:10



05
601 RAISED TIMBER ELEMENTS - TYPICAL DETAIL
SCALE 1:20

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TOPSPRING ST LEONARDS
21-41 Canberra Ave and 18-32 Holdsworth Ave
St Leonards / New South Wales

Development Application

Client



Drawing No.
L-601

Drawing Name
**LANDSCAPE DETAILS -
HARDSCAPE**

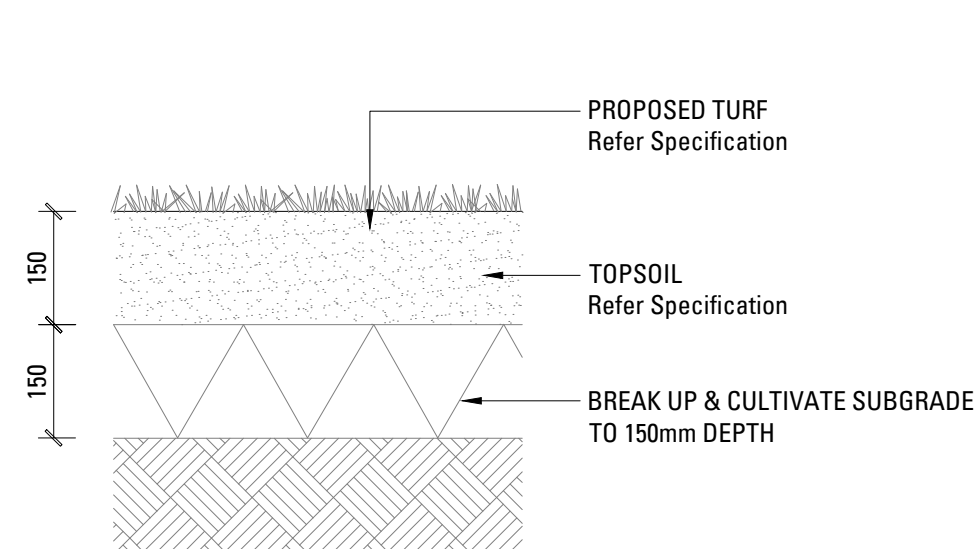
Job No.
18-542

Issue
B

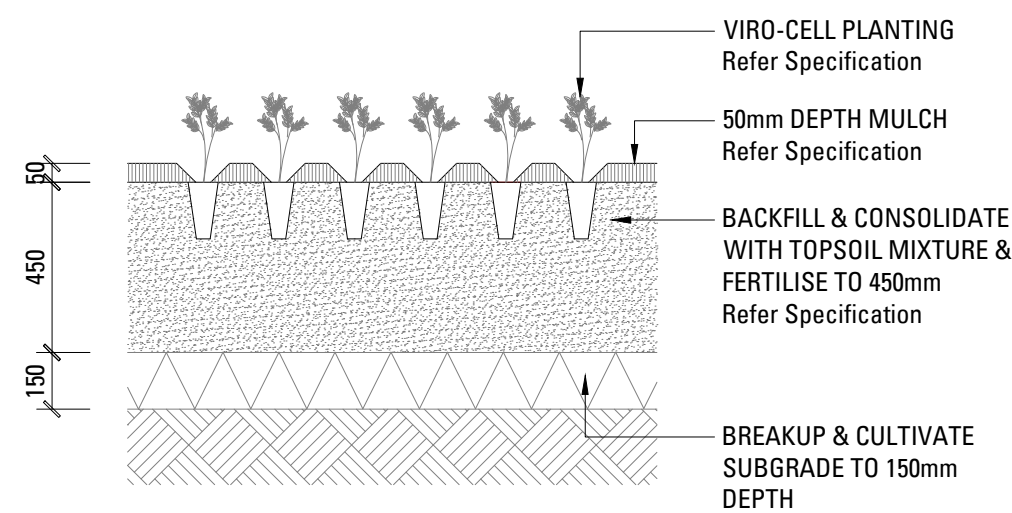
Scale
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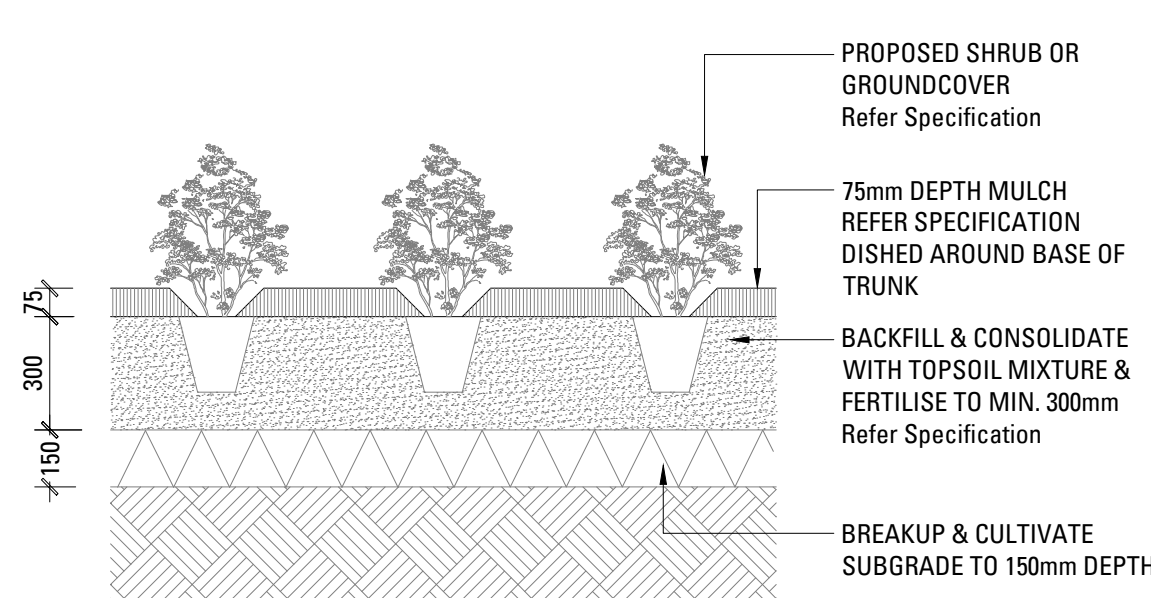


01
602 TURF ON GRADE
SCALE 1:10

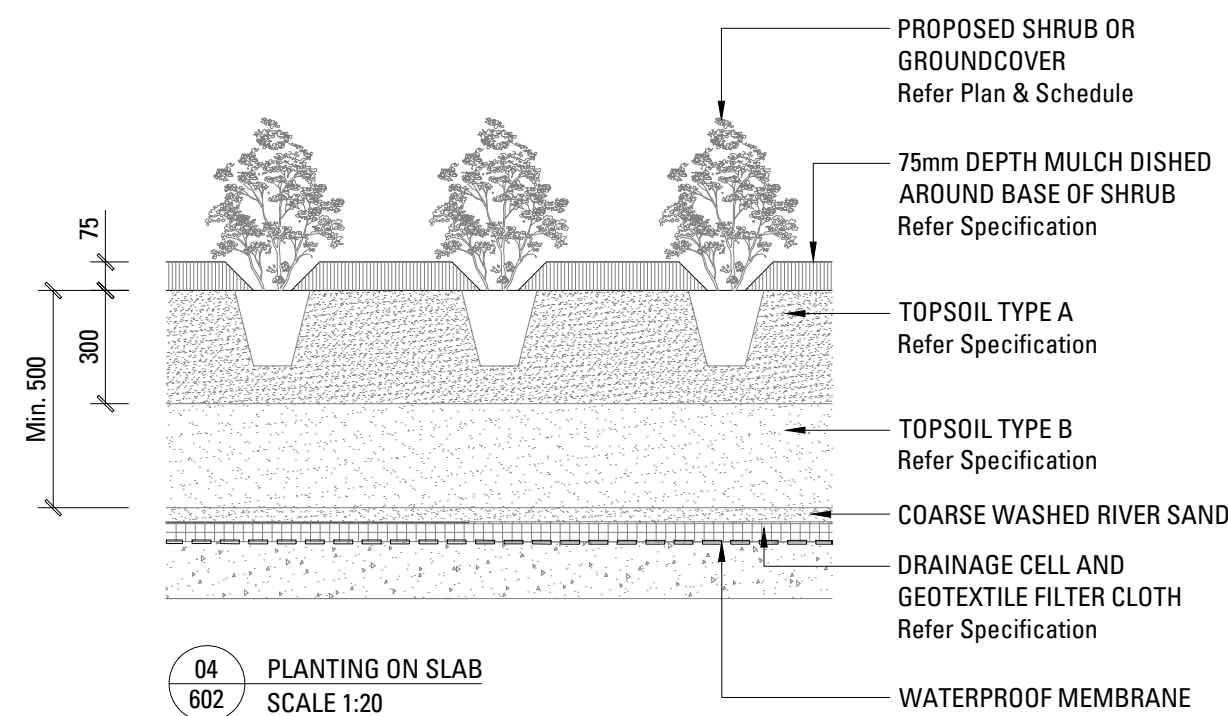


NOTE:
MULCH TO BE SPREAD TO 50mm DEPTH MAX.
OVER TOPSOIL PRIOR TO PLANTING OF
VIRO-CELLS.

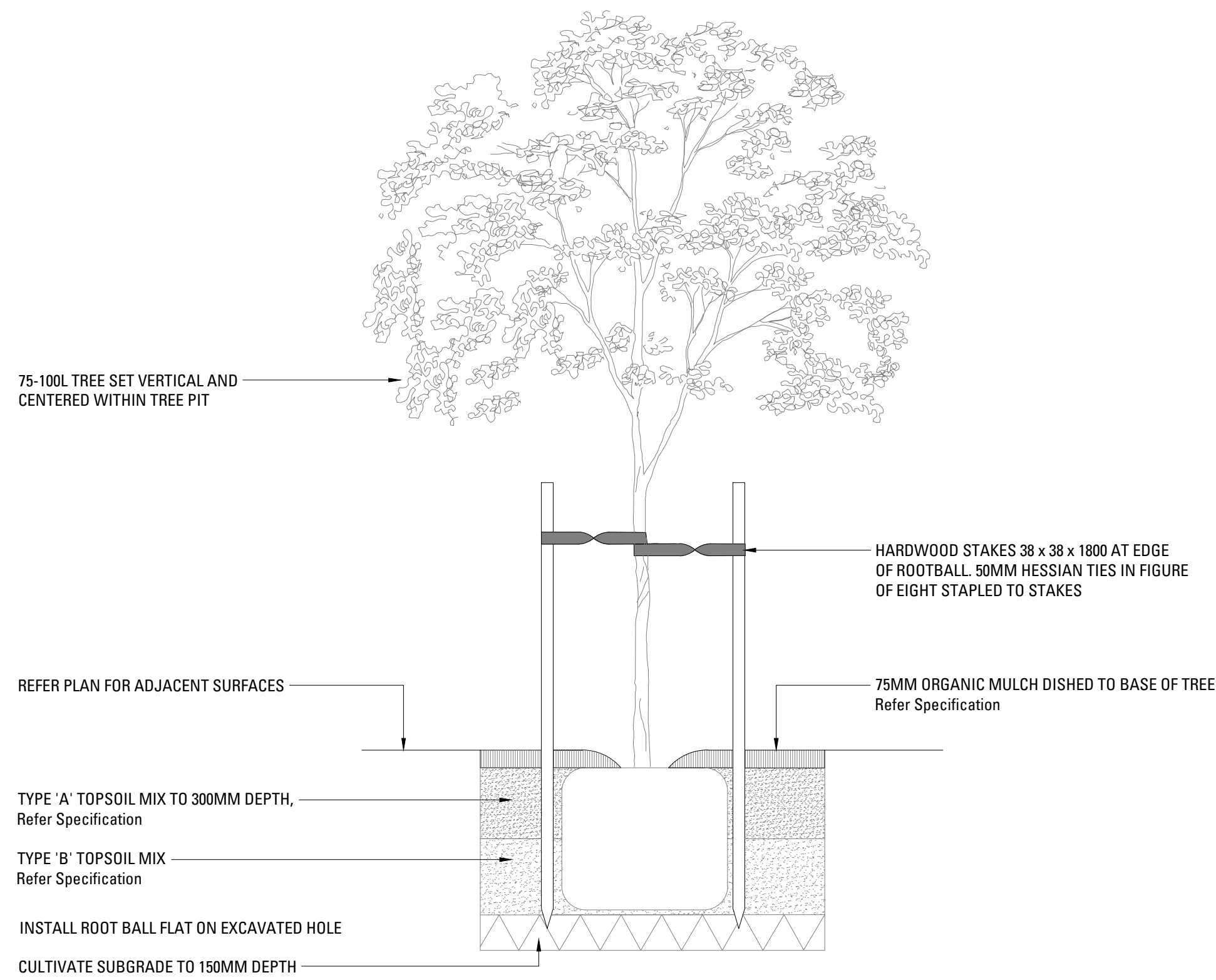
02
602 VIRO-CELLS GROUNDCOVER
SCALE 1:20



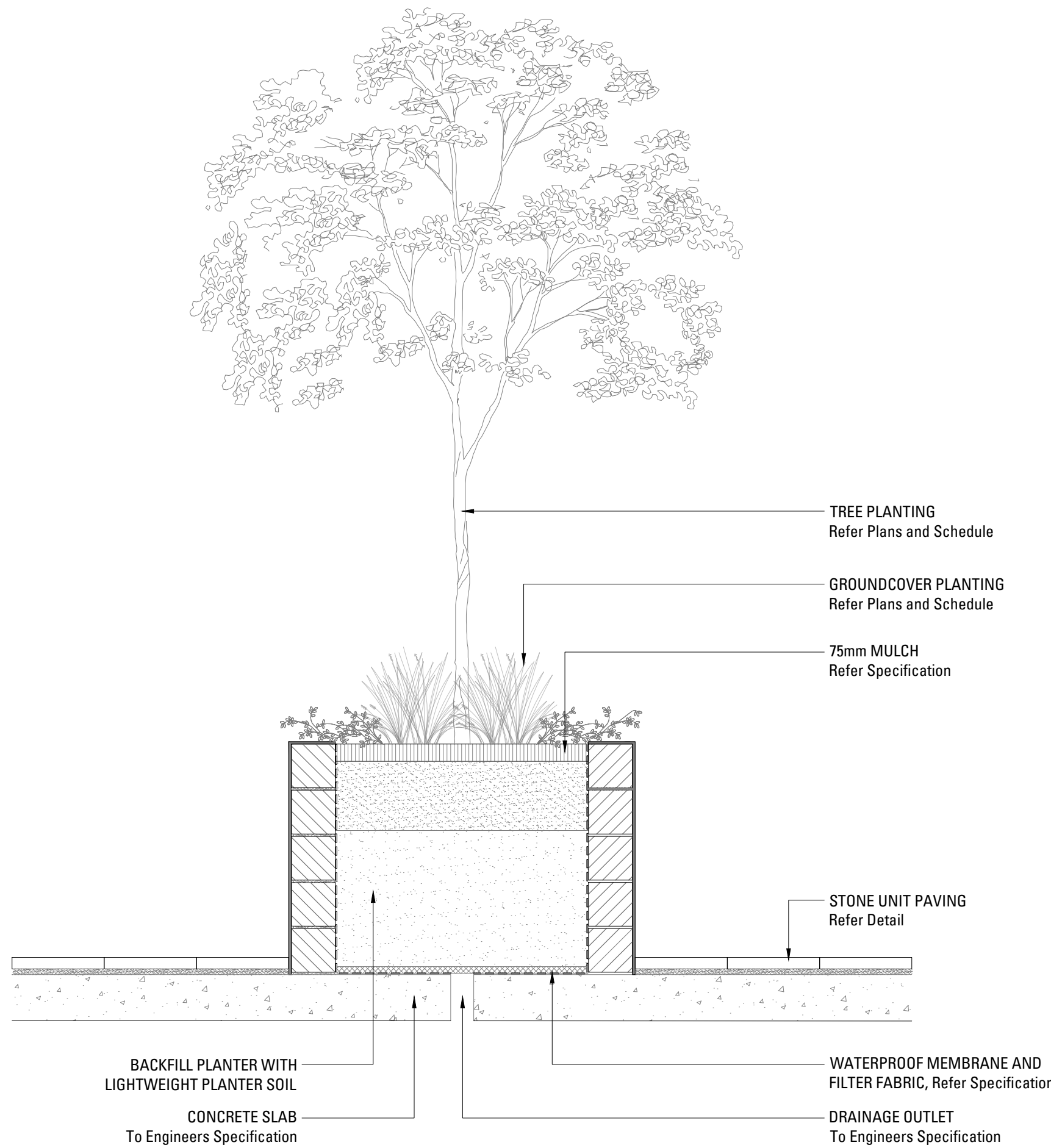
03
602 SHRUB OR GROUNDCOVER IN PLANTING BED
SCALE 1:20



04
602 PLANTING ON SLAB
SCALE 1:20



05
602 TREE PLANTING 75-100L
SCALE 1:20



06
602 RAISED PLANTER ON SUSPENDED SLAB
SCALE 1:20

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Drawing No. L-602
Drawing Name LANDSCAPE DETAILS - SOFTSCAPE

Job No. 18-542
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LANDSCAPE SPECIFICATION NOTES

SERVICES

BEFORE LANDSCAPE WORK IS COMMENCED THE LANDSCAPE CONTRACTOR IS TO ESTABLISH THE POSITION OF ALL SERVICE LINES AND ENSURE TREE PLANTING IS CARRIED OUT AT LEAST 3 METRES AWAY FROM THESE SERVICES. SERVICE LIDS, VENTS AND HYDRANTS SHALL BE LEFT EXPOSED AND NOT COVERED BY ANY LANDSCAPE FINISHES (TURFING, PAVING, GARDEN BEDS ETC.) FINISH ADJOINING SURFACES FLUSH WITH PIT LIDS.

ABORIST MANAGEMENT OF TREE PROTECTION

A QUALIFIED AND APPROVED ABORIST IS TO BE CONTRACTED TO UNDERTAKE OR MANAGE THE INSTALLATION OF PROTECTIVE FENCING, AND TO UNDERTAKE SUCH MEASURES AS HE DEEMS APPROPRIATE TO PRESERVE THE SUBJECT TREES TO BE RETAINED. THE ARBORIST IS TO BE RETAINED FOR THE ENTIRE CONTRACT PERIOD TO UNDERTAKE ONGOING MANAGEMENT AND REVIEW OF THE TREES.

DRAINAGE CELL AND FILTER FABRIC

FOR ON-SLAB AREAS INSTALL AN APPROVED 'DRAINAGE CELL' PRODUCT TO COMPREHENSIVELY COVER THE BOTTOM OF ALL PLANTERS. OVER DRAINAGE CELL TO ON-SLAB AREAS, A POLYFELT GEOTEXTILE LINING (AS SUPPLIED BY 'POLYFELT TS' OR APPROVED EQUIVALENT) IS TO BE INSTALLED TO COVER THE BOTTOM OF ALL PLANTERS, TURNED UP 300MM AND TAPED TO THE PLANTER SIDES TO ENSURE SOIL MIX DOES NOT ESCAPE INTO DRAINAGE OUTLETS/HOLES. INSTALL MIN. 50MM COARSE RIVER SAND OVER ALL GEOTEXTILE LINING PRIOR TO INSTALLATION OF SOIL MIX.

PLANTING MIXTURE

SHALL BE HOMOGENOUS BLEND OF SOIL AND ADDITIVES IN THE FOLLOWING PROPORTIONS:
EXISTING SITE SOIL IF SUITABLE OR
IMPORTED TOPSOIL 50%
COMPOST 30%
D/W SAND 20%
SOIL TESTING OF EXISTING SITE SOIL IS TO BE UNDERTAKEN TO ASSESS SUITABILITY OF USE AS PLANTING TOPSOIL AND COMPLIANCE WITH AUSTRALIAN STANDARDS.

MULCH APPLICATION

PLACE MULCH TO THE REQUIRED DEPTH, (REFER TO DRAWINGS) CLEAR OF PLANT STEMS, AND RAKE TO AN EVEN SURFACE FINISHING 25MM BELOW ADJOINING LEVELS. ENSURE MULCH IS WATERED IN AND TAMPED DOWN DURING INSTALLATION.

MULCH TYPE

PINE BARK: FROM MATURE TREES, GRADED IN SIZE FROM 15MM TO 30MM, FREE FROM WOOD SLIVERS. DARK BROWN IN COLOUR AND TEXTURE.

COMPOST

SHALL BE WELL ROTTED VEGETATIVE MATERIAL OR ANIMAL MANURE, OR OTHER APPROVED MATERIAL, FREE FROM HARMFUL CHEMICALS, GRASS AND WEED GROWTH AND WITH NEUTRAL PH. PROVIDE A CERTIFICATE OF PROOF OF PH UPON REQUEST.

PLANT MATERIAL

ALL PLANTS SUPPLIED ARE TO CONFORM WITH THOSE SPECIES LISTED IN THE PLANT SCHEDULE ON THE DRAWINGS. GENERALLY PLANTS SHALL BE VIGOROUS, WELL ESTABLISHED, HARDENED OFF, OF GOOD FORM CONSISTENT WITH SPECIES OR VARIETY, NOT SOFT OR FORCED, FREE FROM DISEASE OR INSECT PESTS WITH LARGE HEALTHY ROOT SYSTEMS AND NO EVIDENCE OF HAVING BEEN RESTRICTED OR DAMAGED. TREES SHALL HAVE A LEADING SHOOT. IMMEDIATELY REJECT DRIED OUT, DAMAGED OR UNHEALTHY PLANT MATERIAL BEFORE PLANTING. ALL STOCK IS TO BE CONTAINER GROWN FOR A MINIMUM OF SIX (6) MONTHS PRIOR TO DELIVERY TO SITE

FERTILISER MASS PLANTING AREAS:

FERTILISER SHALL BE 'NUTRICOTE' OR APPROVED EQUIVALENT IN GRANULE FORM INTENDED FOR SLOW RELEASE OF PLANT NUTRIENTS OVER A PERIOD OF APPROXIMATELY NINE MONTHS. THOROUGHLY MIX FERTILISER WITH PLANTING MIXTURE AT THE RECOMMENDED RATE, PRIOR TO INSTALLING PLANTS.

TURF

SHALL BE SIR WALTER BUFFALO. SHIRLEYS NO. 17 OR APPROVED EQUAL LAWN FOOD SHALL BE THOROUGHLY MIXED INTO THE TOPSOIL PRIOR TO PLACING TURF.

TREES IN GRASS AND SUPER ADVANCED TREES:

PELLETS SHALL BE IN THE FORM INTENDED TO UNIFORMLY RELEASE PLANT FOOD ELEMENTS FOR A PERIOD OF APPROXIMATELY NINE MONTHS EQUAL TO SHIRLEYS KOKEI PELLETS, ANALYSIS 6:3.1.8:2.9. KOKEI PELLETS SHALL BE PLACED AT THE TIME OF PLANTING TO THE BASE OF THE PLANT, 50MM MINIMUM FROM THE ROOT BALL AT A RATE OF TWO PELLETS PER 300MM OF TOP GROWTH TO A MAXIMUM OF 8 PELLETS PER TREE.

STAKING AND TYING

STAKES SHALL BE STRAIGHT HARDWOOD, FREE FROM KNOTS AND TWISTS, POINTED AT ONE END AND

SIZED ACCORDING TO SIZE

OF PLANTS TO BE STAKED.

- A. 5-15 LITRE SIZE PLANT 1X(1200X25X25MM)
 - B. 35-75 LITRE SIZE PLANT 2X(1500X38X38MM)
 - C. 100-GREATER THAN 200LITRE 3X(1800X50X50MM)
- TIES SHALL BE 50MM WIDE HESSIAN WEBBING OR APPROVED EQUIVALENT NAILED OR STAPLED TO STAKE. DRIVE STAKES A MINIMUM ONE THIRD OF THEIR LENGTH, AVOIDING DAMAGE TO THE ROOT SYSTEM, ON THE WINDWARD SIDE OF THE PLANT.

IRRIGATION SYSTEM

SUPPLY AN AUTOMATIC WATERING SYSTEM USING 'TORO IRRIGATION SYSTEM' OR SIMILAR APPROVED, WITH MICRO-JET SPRINKLER HEADS AND LOW DENSITY, RUBBER MODIFIED POLYPROPYLENE RETICULATION, TO INCLUDE FILTERS, BENDS JUNCTIONS, ENDS AND OTHER ANCILLARY EQUIPMENT. THE LANDSCAPER SHALL NOMINATE HIS SOURCE OF SUPPLY FOR THE WATERING SYSTEM AND OBTAIN APPROVAL FROM THE SUPERINTENDENT BEFORE PLACING ORDERS FOR EQUIPMENT OR SUPPLY.

A SCHEMATIC PLAN OF THE PROPOSED IRRIGATION SYSTEM IS TO BE PREPARED BY THE CONTRACTOR, SHOWING SOLENOIDS, PIPE DIAMETERS, AND ALL NOZZLE AND TRICKLE ATTACHMENT TYPES (INCLUDING SPRAY/HEAD ANGLE), FOR REVIEW BY THE SUPERINTENDENT PRIOR TO INSTALLATION

THE CONTRACTOR IS TO LIASE WITH THE HYDRAULIC ENGINEER AND COUNCIL AS NECESSARY, TO ENSURE THE THE IRRIGATION SYSTEM CONFORMS WITH ALL THE COUNCIL AND WATER BOARD CODES AND REQUIREMENTS.

PROVIDE AN AUTOMATIC CONTROLLER THAT PROVIDES FOR TWO WEEK SCHEDULING AND HOURLY MULTI-CYCLE OPERATION. THE CONTROLLER SHALL MANUAL OVERRIDE. PROGRAMMING SHALL BE UNDERTAKEN BY THE CONTRACTOR WHO SHALL ADVISE ON THE OPERATION OF THE SYSTEM.

PROVISION OF SECURE HOUSING FOR THE AUTOMATIC IRRIGATION CONTROLLER TO BE LOCATED IN ASSOCIATION WITH THE LANDSCAPE CONTRACTOR AND LOCATION CONFIRMED BY THE SUPERINTENDENT. WIRING TO CONNECT REMOTE SOLENOID LOCATIONS IS TO BE PROVIDED. THE CONTROLLER SHALL BE LOCATED IN A DRY PLACE, PROTECTED FROM THE WEATHER, AND ALL CABLE CONNECTIONS SHALL BE MADE WITH WATERPROOF CONNECTORS.

WATER SUPPLY POINTS TO BE SUPPLIED BY BUILDER.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE AND GUARANTEE SATISFACTORY OPERATION OF THE IRRIGATION SYSTEM.

AFTER THE SYSTEM HAS BEEN INSTALLED TO THE SATISFACTION OF THE SUPERINTENDENT, THE INSTALLATION SHALL BE TESTED UNDER KNOWN WORKING CONDITIONS. ACCEPTANCE OF THE INSTALLED PLANT AND EQUIPMENT SHALL BE SUBJECT TO THESE BEING SATISFACTORY.

TREATED PINE TIMBER EDGING

TIMBER EDGE: 100 X 25MM CCA TREATED RADIATA PINE TIMBER STAKES: 50 X 50 X 500MM CCA TREATED RADIATA PINE-SHARPENED AT ONE END. INSTALL IN LOCATIONS SHOWN ON THE DRAWINGS FLUSH TO FINISHED SURFACE LEVELS.

TURF

TURF ALL LANDSCAPE AREAS AS SHOWN ON THE LANDSCAPE DRAWINGS. TURF IS TO HAVE AN EVEN THICKNESS OF NOT LESS THAN 25MM. OBTAIN TURF FROM AN APPROVED GROWER. FURNISH A WARRANTY FROM THE GROWER THAT THE TURF IS FREE FROM WEEDS AND OTHER FOREIGN MATTER. DELIVER TURF TO THE SITE WITHIN 24 HOURS OF BEING CUT, AND LAY IT WITHIN 24 HOURS OF BEING DELIVERED.

TO PREPARE GRADED AREAS TO RECEIVE TURF, EXCAVATE THE AREA AND CULTIVATE SO AS TO ALLOW FOR IMPORTING OF 100MM OF TURF UNDERLAY SOIL. REMOVE ALL STONES OVER 50MM Ø AND REMOVE ALL WEEDS AND FOREIGN MATTER. SPREAD SOIL MIX A.B.S TO A DEPTH OF 100MM AND GRADE TO APPROPRIATE LEVELS TO ACHIEVE GENERAL EVEN GRADES TO DRAINAGE OUTLETS INSTALLED BY OTHERS.

LAY THE TURF ALONG THE LAND CONTOURS WITH STAGGERED, CLOSE BUTTED JOINTS, SO THAT THE FINISHED TURF SURFACE IS FLUSH WITH ADJACENT FINISHED SURFACES OF PAVING AND THE LIKE. AS SOON AS PRACTICABLE AFTER LAYING, ROLL THE TURF WITH A ROLLER WEIGHING NOT MORE THAN 90KG PER METRE OF WIDTH FOR SANDY OR LIGHT SOILS.

WATER AS NECESSARY TO KEEP THE SOIL MOIST TO A DEPTH OF 100MM. PROTECT NEWLY TURFED AREAS AGAINST TRAFFIC UNTIL GRASS IS ESTABLISHED. FERTILISE TWO WEEKS AFTER LAYING FERTILISE A.B.S

'TOP DRESS' THE TURF WHEN IT IS ESTABLISHED TO A DEPTH OF 10MM WITH COARSE WASHED RIVER SAND. RUB THE DRESSING WELL INTO THE JOINTS AND CORRECT ANY UNEVENNESS IN THE TURF SURFACES.

LANDSCAPE MAINTENANCE PROGRAM

MAINTENANCE SHALL MEAN THE CARE AND MAINTENANCE OF THE LANDSCAPE WORKS BY ACCEPTED HORTICULTURAL PRACTICE AS RECTIFYING ANY DEFECTS THAT BECOME APPARENT IN THE LANDSCAPE WORKS UNDER NORMAL USE. THIS SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, WATERING, MOWING, FERTILISING, RESEEDING, RETURFING, WEEDING, PEST AND DISEASE CONTROL, STAKING AND TYING, REPLANTING, CULTIVATION, PRUNING, AERATING, RENOVATING, TOP DRESSING, MAINTAINING THE SITE IN A NEAT AND TIDY CONDITION AS FOLLOWS:-

GENERAL

THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE LANDSCAPE WORKS FOR THE TERM OF THE MAINTENANCE (OR PLANT ESTABLISHMENT) PERIOD TO THE SATISFACTION OF THE COUNCIL. THE LANDSCAPE CONTRACTOR SHALL ATTEND TO THE SITE ON A WEEKLY BASIS. THE MAINTENANCE PERIOD SHALL COMMENCE AT PRACTICAL COMPLETION AND CONTINUE FOR A PERIOD OF TWENTY SIX (26) WEEKS.

WATERING

GRASS, TREES AND GARDEN AREAS SHALL BE WATERED REGULARLY SO AS TO ENSURE CONTINUOUS HEALTHY GROWTH.

RUBBISH REMOVAL

DURING THE TERM OF THE MAINTENANCE PERIOD THE LANDSCAPE CONTRACTOR SHALL REMOVE RUBBISH THAT MAY OCCUR AND REOCCUR THROUGHOUT THE MAINTENANCE PERIOD. THIS WORK SHALL BE CARRIED OUT REGULARLY SO THAT AT WEEKLY INTERVALS THE AREA MAY BE OBSERVED IN A COMPLETELY CLEAN AND TIDY CONDITION.

REPLACEMENTS

THE LANDSCAPE CONTRACTOR SHALL REPLACE ALL PLANTS THAT ARE MISSING, UNHEALTHY OR DEAD AT THE LANDSCAPE CONTRACTOR'S COST. REPLACEMENTS SHALL BE OF THE SAME SIZE, QUALITY AND SPECIES AS THE PLANT THAT HAS FAILED UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT. REPLACEMENTS SHALL BE MADE ON A CONTINUING BASIS NOT EXCEEDING TWO (2) WEEKS AFTER THE PLANT HAS DIED OR IS SEEN TO BE MISSING.

STAKES AND TIES

THE LANDSCAPE CONTRACTOR SHALL REPLACE OR ADJUST PLANT STAKES, AND TREE GUARDS AS NECESSARY OR AS DIRECTED BY THE LANDSCAPE ARCHITECT. REMOVE STAKES AND TIES AT THE END OF THE MAINTENANCE PERIOD IF SO DIRECTED.

PRUNING

TREES AND SHRUBS SHALL BE PRUNED AS DIRECTED BY THE LANDSCAPE ARCHITECT. PRUNING WILL BE DIRECTED AT THE MAINTENANCE OF THE DENSE FOLIAGE OR MISCELLANEOUS PRUNING AND BENEFICIAL TO THE CONDITION OF THE PLANTS. ANY DAMAGED GROWTH SHALL BE PRUNED. ALL PRUNED MATERIAL SHALL BE REMOVED FROM THE SITE.

MULCHED SURFACES

ALL MULCHED SURFACES SHALL BE MAINTAINED IN A CLEAN AND TIDY CONDITION AND BE REINSTATED IF NECESSARY TO ENSURE THAT A DEPTH OF 75MM IS MAINTAINED. ENSURE MULCH IS KEPT CLEAR OF PLANT STEMS AT ALL TIMES.

PEST AND DISEASED CONTROL

THE LANDSCAPE CONTRACTOR SHALL SPRAY AGAINST INSECT AND FUNGUS INFESTATION WITH ALL SPRAYING TO BE CARRIED OUT IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. REPORT ALL INSTANCES OF PESTS AND DISEASES (IMMEDIATELY THAT THEY ARE DETECTED) TO THE LANDSCAPE ARCHITECT.

GRASS AND TURF AREAS

THE LANDSCAPE CONTRACTOR SHALL MAINTAIN ALL GRASS AND TURF AREAS BY WATERING, WEEDING, DRESSING, ROLLING, MOWING, TRIMMING OR OTHER OPERATIONS AS NECESSARY. SEED AND TURF SPECIES SHALL BE THE SAME AS THE ORIGINAL SPECIFIED MIXTURE. GRASS AND TURF AREAS SHALL BE SPRAYED WITH APPROVED SELECTIVE HERBICIDE AGAINST BROAD LEAFED WEEDS AS REQUIRED BY THE LANDSCAPE ARCHITECT AND IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. GRASS AND TURF AREAS SHALL BE FERTILISED ONCE A YEAR IN AUTUMN WITH "DYNAMIC LIFTER" FOR LAWNS AT A RATE OF 20KG PER 100M2. FERTILISER SHALL BE WATERED IN IMMEDIATELY AFTER APPLICATION. IRREGULARITIES IN THE GRASS AND TURF SHALL BE WATERED IN IMMEDIATELY AFTER APPLICATION. GRASS AND TURF AREAS SHALL BE KEPT MOWN TO MAINTAIN A HEALTHY AND VIGOROUS SWARD. MOWING HEIGHT: 30-50MM.

WEED ERADICATION

ERADICATE WEEDS BY ENVIRONMENTALLY ACCEPTABLE METHODS USING A NON-RESIDUAL GLYPHOSATE HERBICIDE (EG. 'ROUNDUP') IN ANY OF ITS REGISTERED FORMULAE, AT THE RECOMMENDED MAXIMUM RATE. REGULARLY REMOVE BY HAND, WEED GROWTH THAT MAY OCCUR OR RECUR THROUGHOUT GRASSED, PLANTED AND MULCHED AREAS. REMOVE WEED GROWTH FROM AN AREA 750MM DIAMETER AROUND THE BASE OF TREES IN GRASSED AREAS. CONTINUE ERADICATION THROUGHOUT THE COURSE OF THE WORKS AND DURING THE MAINTENANCE PERIOD.

SOIL SUBSIDENCE

ANY SOIL SUBSIDENCE OR EROSION WHICH MAY OCCUR AFTER THE SOIL FILLING AND PREPARATION OPERATIONS SHALL BE MADE GOOD BY THE LANDSCAPE CONTRACTOR AT NO COST TO THE CLIENT.

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