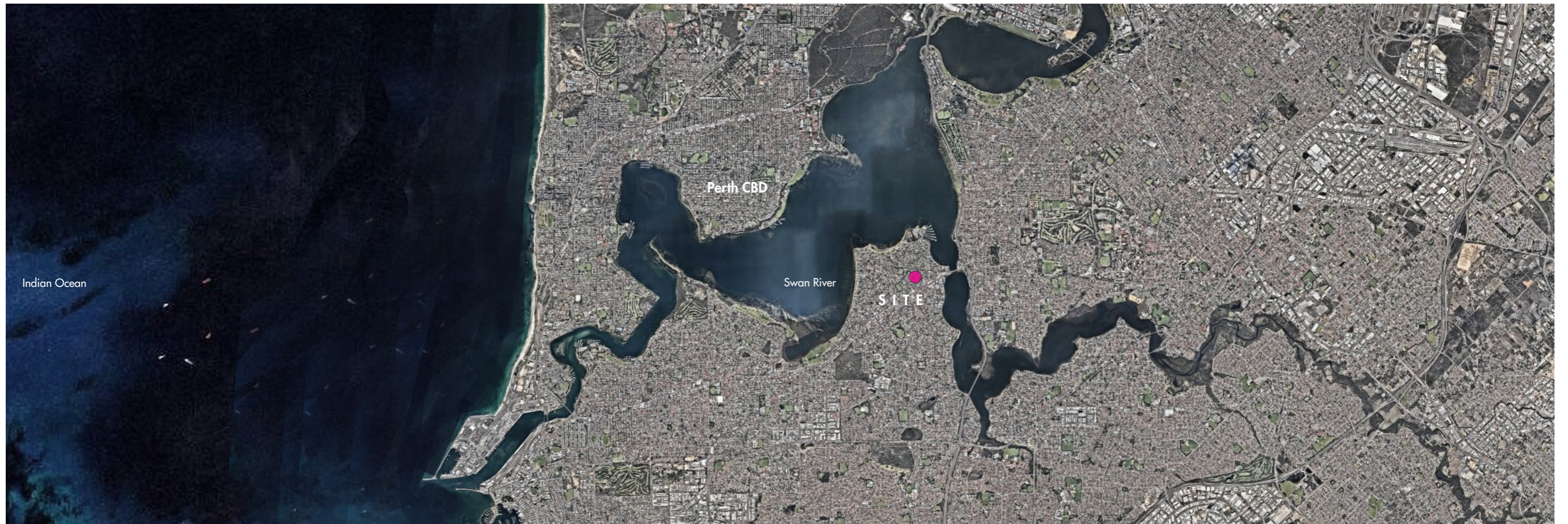
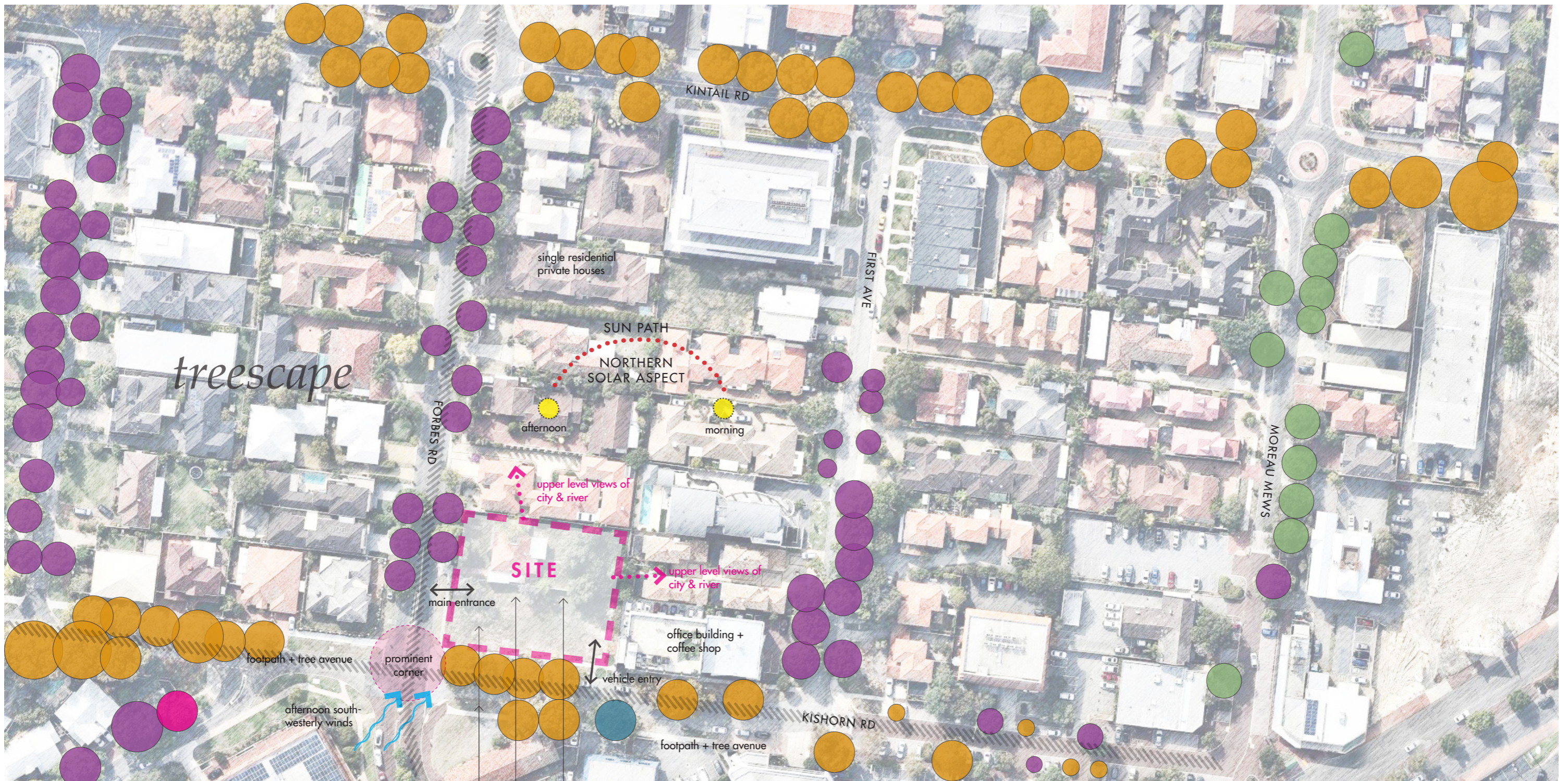


FORBES Residences
Applecross, Western Australia

Landscape Schematic
Revised DRP Issue - 190131







Existing Neighbourhood Street + Site Condition

STREETSCAPE
Existing street trees provide a large scaled tree address to the site. The views from the site across the street are largely of commercial premises.

PANORAMA
The project site will be both highly visible and allow panoramic views from the upper levels.

EXISTING SITE VEGETATION
The existing site does not have any vegetation of note.



Jacaranda Mimosifolia (Jacaranda)



Platanus Acerifolia (London Plane)



Agonis Flexuosa (Willow Myrtle)

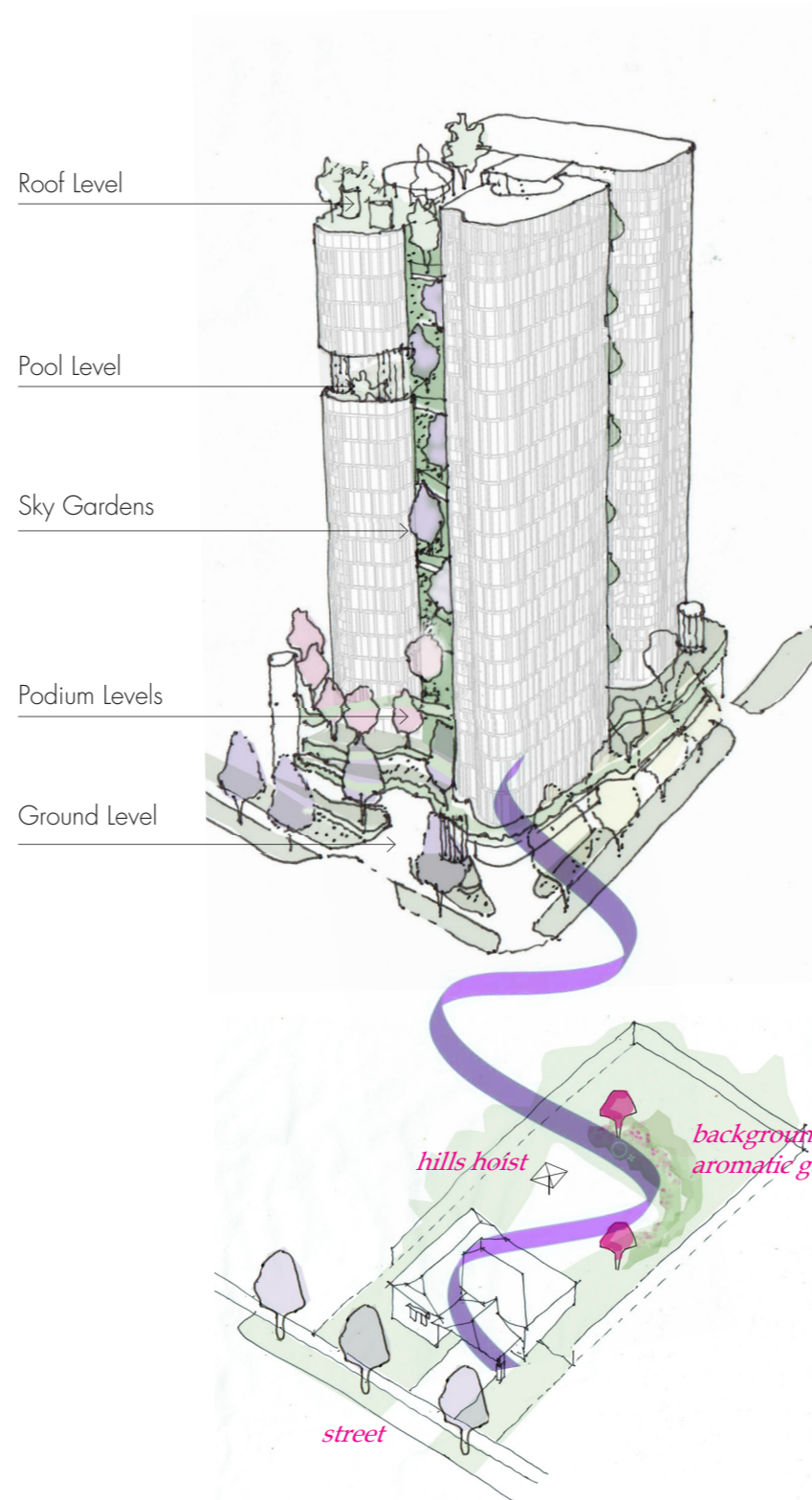


Bauhinia Sp. (Purple Hong Kong Orchid)



Melia Azedarach (Chinaberry)

EXISTING LANDSCAPE KEY



CONCEPT IDEA
interpreting an Applecross residential landscape

Immersed in a Landscape

The Forbes Residences landscape has been considered as primary element by the team and has been purposefully integrated into the planning and articulation of the residences from the project's inception.

One of the unique qualities of the locale would have to be the large trees lining both sides of the streets to Applecross. Their filtered canopies provide a welcoming presence for all driving and walking at street whilst providing a front address for each residence. The trees frame, guide and provide an enduring single marker for all in the landscape. Generous sized suburban backyards offer refuge for life. The locale's eclectic and exotic suburban landscapes offer familiar memories in flower, texture and aroma. Tree houses, hills hoist and cultivated gardens present.

The project's landscape design echoes these features, interpreting them for a multi-levelled environment. The landscapes provides a soft layered link to all the floors, providing continuing landscapes trellises and sky gardens, echoing the street, providing a welcome for arrivals and residents.

A number of the landscape elements proposed have been demonstrated in a number of completed projects by the team, reflecting a continuing commitment and employment of strategies that have been effectively realised in practice.

Landscape Connections

Suburban gardens are disappearing with Perth's densification, reducing external social amenities and diverse garden spaces. We are hoping to establish in the proposal, real connections with people and landscapes. At street level, at the front door and in the social gathering areas. Throughout the upper levels, aromatic gardens, the fruit patch, the hills hoist and the outdoor barbeque can be experienced both intimately and by all.

Cascading + Vertical Landscapes

Reflecting the project's strategy of continuing landscape to all the levels, cascade and vertical landscape elements have been provided in a variety of ways.

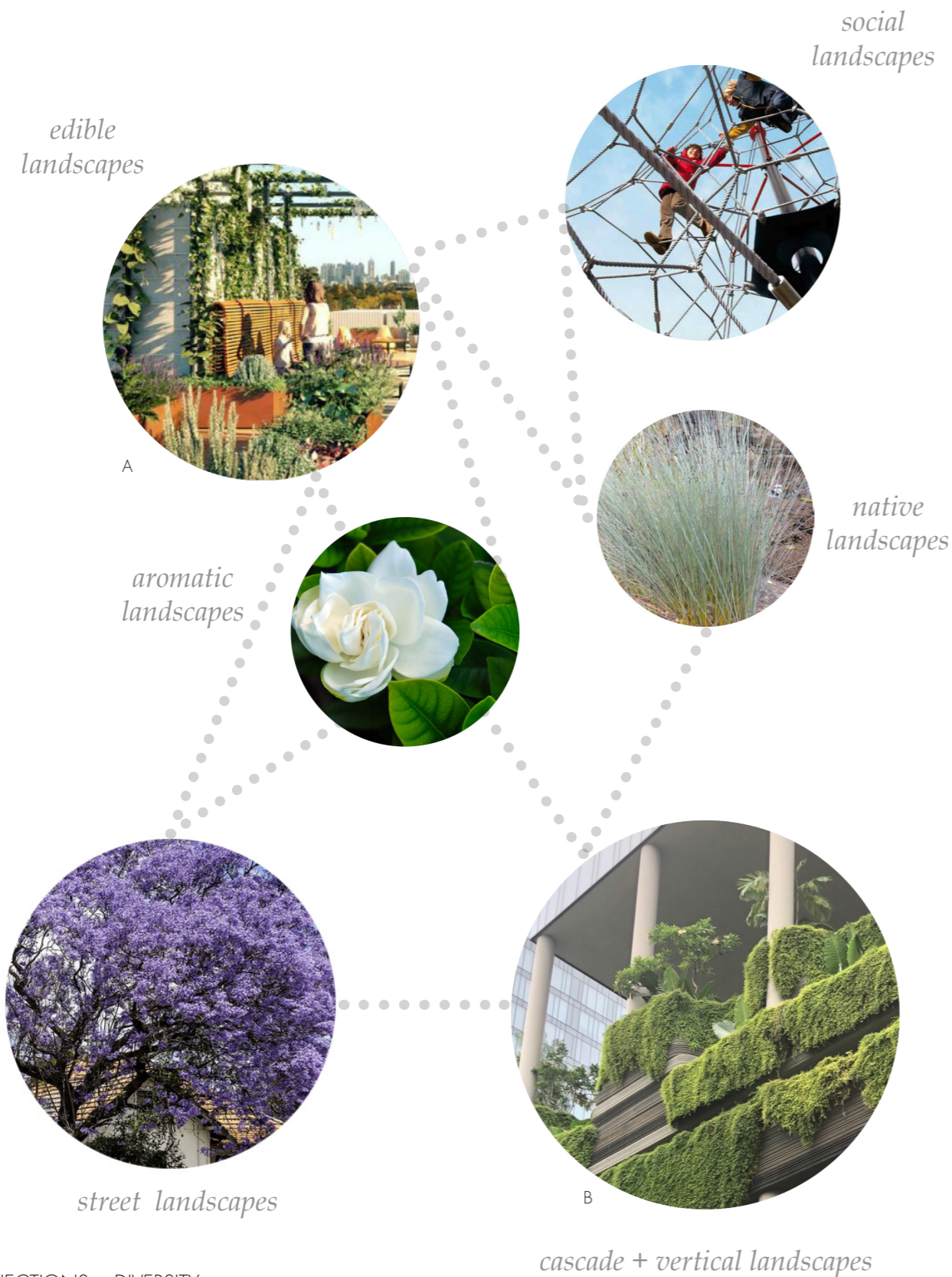
To the ground and podium levels, continuous native plantings of cascade plants have been provided to all the edges, providing a soft ribbon layer to the lower levels. Selections have been based on plants that are resilient, low maintenance plants and have a naturally occurring pendulous habit.

Extensive vertical plantings to three sides, extend to all the building's levels, flanking the sky garden tree. They will be a significant landscape element that will be unique to the building's elevation and experience from the internal circulation areas (often neglected in recent residential developments).

It is proposed that the vertical garden elements be provided by linear planters placed every 1.5m in height, behind a fixed trellis system. They will be set off from the building to allow ease of maintenance access behind. A green wall cassette system has not been envisaged as a viable solution due to its high water, maintenance requirement and often high plant failure. Instead, plant selections will be resilient clinging type affixing to the trellis structure. Plantings will be paired with a mix of plantings of lower and extended height plant types to provide green coverage.

Given the significance, complexity and the challenge of providing such an extensive vertical green infrastructure, these vertical planting elements will require continuing input during design development and analysis of documentation and input by a specialised vertical softscape engineer. This analysis will include solar study & glass reflection study, wind study, review of landscape soil, trellis + plant selections and review of irrigation documentation. It is proposed that this analysis and accompanying certification be submitted as part of the Building License Issue as a commitment to provide a system that will provide a sustained outcome. This process will allow for good process and accurate rigor of the documented proposals.

Vertical green elements require lifecycle care and consideration to include design and maintenance. Some vertical green elements can be costly to maintain, fail and are simply not practical to maintain. We do believe that trellis systems have value for multi-residential projects. The project's team approach is to include the right expertise, appropriate system, evaluate proven examples of installed examples that have thrived over a reasonable period of time in Perth. From a development point of view, viable and sustainable outcomes are imperative given the impact that they have on strata responsibilities and costs.



LANDSCAPE CONNECTIONS + DIVERSITY

Image Key
 A. One Central Park, Sydney
 B. WOHA - Park Royal on Pickering



MATURE TREE PLANTINGS



PODIUM PLANTING
efficient water output: contained & blanketed



A

MAINTENANCE
Access to vertical plantings and podium levels considered

Image Key
A. WOHA - The Met

Diversity in our Landscapes

Along with the vertical trellis planting selections, the landscape proposal purposely sets out to have the best of both worlds: pairing exotic (aromas) with endemic selections (resilient) Aromatic, floral and productive garden selections will also be represented throughout the project.

Thriving Landscapes

Mature tree and feature plant selections will be specified, along with dense plantings as to provide a significant landscape environment at opening.

However the completion of a project is only just the beginning for new landscapes. Key considerations are needed to achieve thriving outcomes: Appropriate plant selections for site, orientation and solar/shade access and the installation of good size plantings. The ongoing maintenance that is critical for long term outcomes and the design and its installation needs to envisage its future care by others.

i) Responsibility of Maintenance

The key for long term success is to ensure that the majority of visible landscape elements from the street and public amenities will be taken care of by the body corporate/strata rather than the individual. This reduces the potential risk of negligence and failure. As such, access provisions will be embedded into the strata guidelines and these areas will be cared for and reticulated as a whole. As the visible areas are part of the strata responsibility, there is a shared interest in ensuring that these landscapes are looked after and maintained.

ii) Maintenance Access

All landscaped areas will require ease of access for checking of reticulation, nutrient replenishment and general plant tidying. Plant selections will be made period seasonal maintenance required, rather than intensive care. Plant selections will be made based upon their requirement for seasonal maintenance only, rather than constant intensive care. Consideration for fixed ladder access to vertical trellis garden elements have been included.

Sustainable Landscapes

WATER EFFICIENT LANDSCAPES

With the majority of the soft landscape being situated in planters as contained situations, there is an opportunity to provide a co-ordinated strategy for a water efficient landscape. Collectively, this would feature

- i) plant selections (low water requirement)
- ii) reduction in evaporation losses
- iii) efficient water supply
- iv) water recycling

Plant selections

In principle, the majority of the softscape ground planting selections are endemic and have a low water requirement. The scheme will also include some feature exotics; offering flowering, deciduous tree and shade qualities. Whilst these exotics echo the locale's existing suburban gardens and seasonal variety, there are also appropriate for shaded situations and offer deciduous habits for winter solar access.

Reductions in evaporation loss

The majority of plantings are located in raised planters. The insulated merits of the constructed planter materials and thicknesses will assist in reducing water evaporation loss. Gravel mulching selected for wind will also provide a blanket layer for reducing water evaporation. As noted in irrigation below, the irrigation is provided below the mulch layer which offers greatly improved efficiency.

Efficient water supply

All plantings will be irrigated via efficient inline drip irrigation system which will cater for water mains and recycled water supply. Where achievable, the plantings 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.

Water recycling

The project will also include infrastructure and provision for a significant capacity for re-using water for irrigation, consistent with WA Health Department guidelines for multi-residential developments and use.

As the recycled water is gathered from multiple sources (multi-residential) a grey water recycling system has been appropriately sized for a maximum of 5000L per day. This system will collect water from Short Stay Accomodations shower and handbasins and EoT shower facilities, and be stored for a maximum of a 24hr period. The ozone treated water will be dispelled via the dripline.

This will be sufficient to water the ground, first and second level plantings. Any top-up requirements during summer and irrigation to the upper levels will be provided via the same dripline system from mains water supply.

WIND INITIATIVES

Given the buildings exposure to south-westerly winds and potential building downdrafts, any Sky Park trees will be permanently guyed with vertically tensioned wiring supports and collars to all trees. Smaller trees to the podium areas will be guyed with stainless tripod arrangement.

Vertical trellis elements will require suitable and appropriate planting types to each micro-climate area for solar access and wind protection to be sustainable. Each of these trellis arrangements will be tested during design development with wind and solar analysis, taking into account building envelope, glazing reflection and wind modelling. This will provide the trellis green sub-consultant confirmed information, allowing rigorous testing to be undertaken on the proposed architectural modelling.

DRP Comments

Query

Further commentary is needed on the provision and maintenance from a water perspective for the softscape, given Perth's climate and the proposed greywater infrastructure, which can be costly and easily switched off by the owners into the future.

Response

The design proposes a significant and considered green infrastructure for the project, providing a unique garden environment and a counter to the urban heat island sink effect.

Water usage for this landscape has been carefully considered in terms of reduced load for population, re-use and efficiency measures.

REDUCED WATER LOAD

Significantly, the water provision for this environment represents a greatly reduced mains water supply requirement when compared to an equivalent population based on traditional suburban housing gardens.

Water expenditure for front and back lawns are saved, verge total areas reduced and central reticulation efficiencies can be achieved.

Comparison Summary of Residential Water for Garden Loads

Typical household average in Applecross = 94 KL per year for garden (source: Water corp)

Project (116 units) = 1987 KL per year (source: Irrigation consultant)

SIGNIFICANT WATER RE-USE

The project also has embedded an alternative water supply infrastructure and delivery. A grey water system which will re-use water from the end of trip shower facilities and short stay accommodation showers and handbasins will provide the majority of water to the total landscape. It represents a more effective strategy than rainwater collection due to the limited rainwater capture area and onerous tank provision requirements.

Mains water load for landscape further reduced by over 50% using grey water recycling.

It is understood that grey-water technology is emergent and relies on specific proven expertise and deliverables. The proposed system (Advanced Waste Water Management Systems >5000lt per day) is in effective operation for over 3 years and can provide tangible benefits. It is Health Department approved and requires minimal maintenance.

More efficient water distribution will be achieved using sub-surface dripline technology.

The proposed grey water technology will be integrated with the reticulation design and delivery to achieve this benefit. Water efficient dripline appropriate for grey water and sustained delivery will also be included. Dripline technology will be sub-surface and more efficient than typical spray systems, with evaporation loss reduced compared to wasteful water over spraying and wind drift. over spraying and wind drift.

DRP Comments

Query

Further commentary is needed for the green walls on water use and maintenance viability

One of the key elements for the landscape are a series of green trellis walls that extend up the building's elevations.

Dedicated horizontal planters being provided (i.e not vertical soil/planting medium arrangement) with a minimum of two to each level

These are to be trellis type plantings and not the water intensive cassette type commonly known for failure in Australia. The planting selections are climbing vine plantings (Ipomea sp.) that can be readily found in Perth's suburbs, covering with ease suburban back and front fences.

Due to the robust nature of these plants, these plantings are the only planting type provided to these planters.

Query

Tree Plantings to the south side need to be appropriate for shade.

The tree selections to the south side take into consideration the reduced solar access.

The selected trees will accommodate shade and also the incidental solar reflections from the glass that will occur.

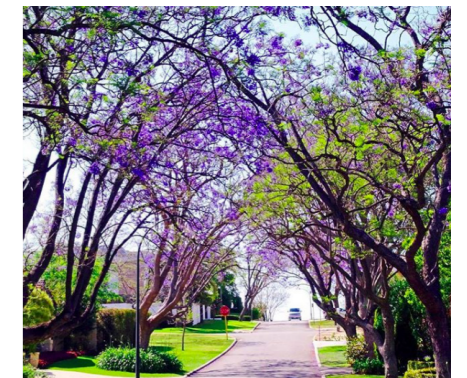
LANDSCAPE PLAN
Ground Floor Overall



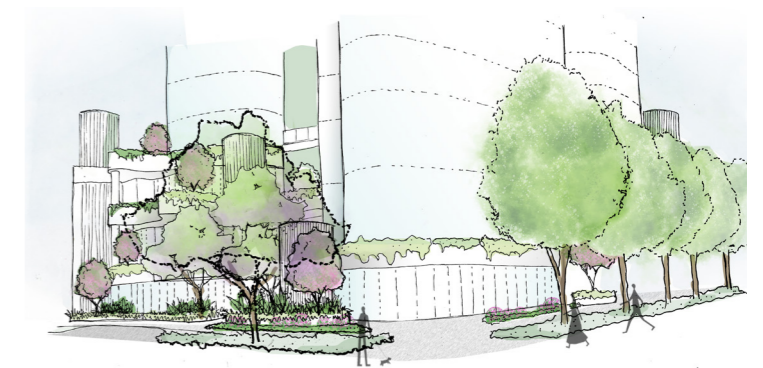
morning sun



PROJECT REFERENCE
Porte Cochere Foyer Landscape
TIERRA - Metropolitan Hotel



JACARANDA AVENUE

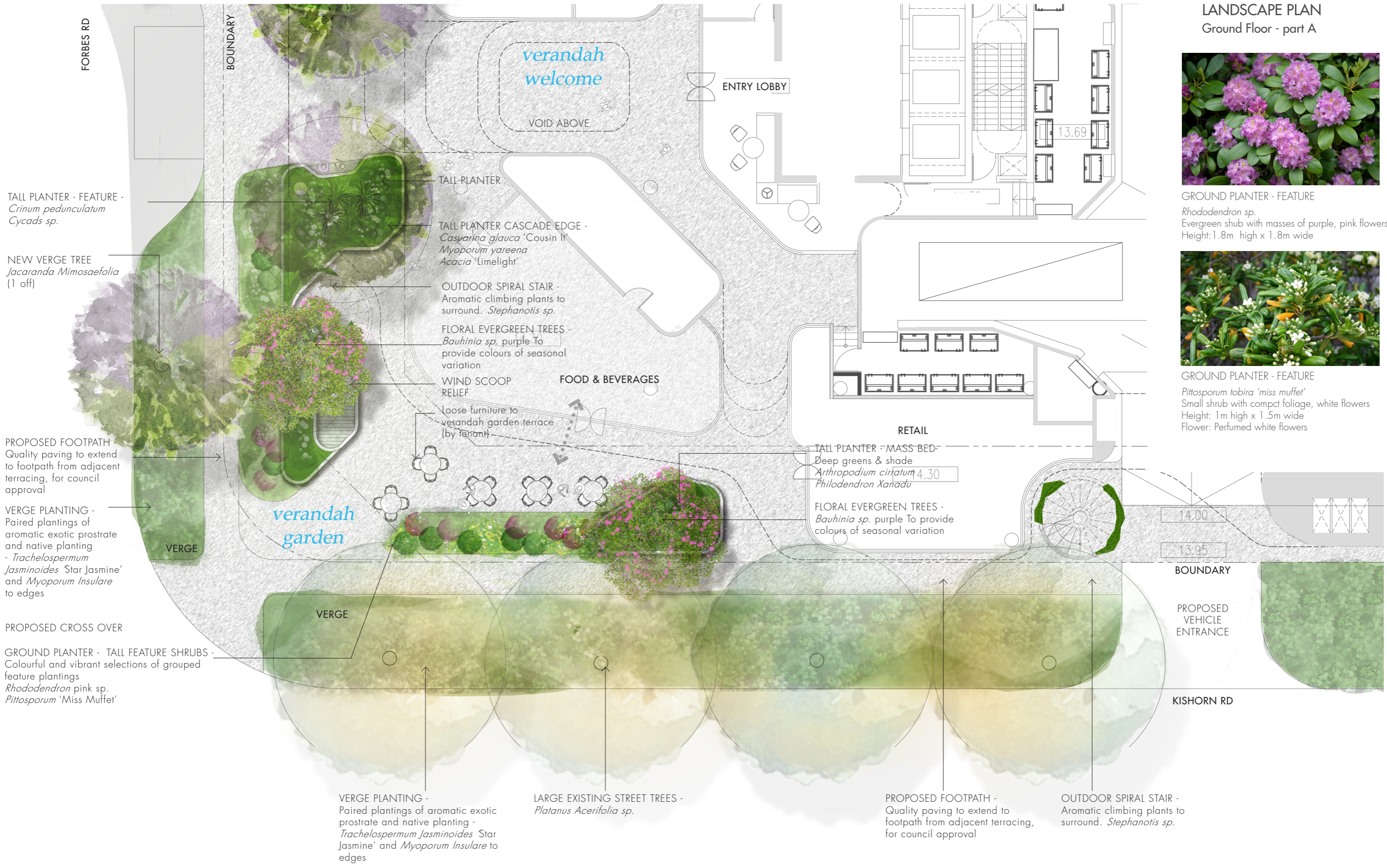


CORNER SKETCH - VIEW 01

SKETCH 01 7

REFER TO PART B

LANDSCAPE PLAN Ground Floor - part A



GROUND PLANTER - FEATURE
Rhododendron sp.
 Evergreen shrub with masses of purple, pink flowers
 Height: 1.8m high x 1.8m wide



GROUND PLANTER - FEATURE
Pittosporum tobira 'miss muffet'
 Small shrub with compact foliage, white flowers
 Height: 1m high x 1.5m wide
 Flower: Perfumed white flowers

TALL PLANTER - FEATURE
Crinum pedunculatum
Cycads sp.

NEW VERGE TREE
Jacaranda Mimosaeifolia
 (1 off)

PROPOSED FOOTPATH
 Quality paving to extend to footpath from adjacent terracing, for council approval

VERGE PLANTING
 Paired plantings of aromatic exotic prostrate and native planting
Trachelospermum Jasminoides 'Star Jasmine'
 and *Myoporum Insulare* to edges

PROPOSED CROSS OVER

GROUND PLANTER - TALL FEATURE SHRUBS
 Colourful and vibrant selections of grouped feature plantings
Rhododendron pink sp.
Pittosporum 'Miss Muffet'

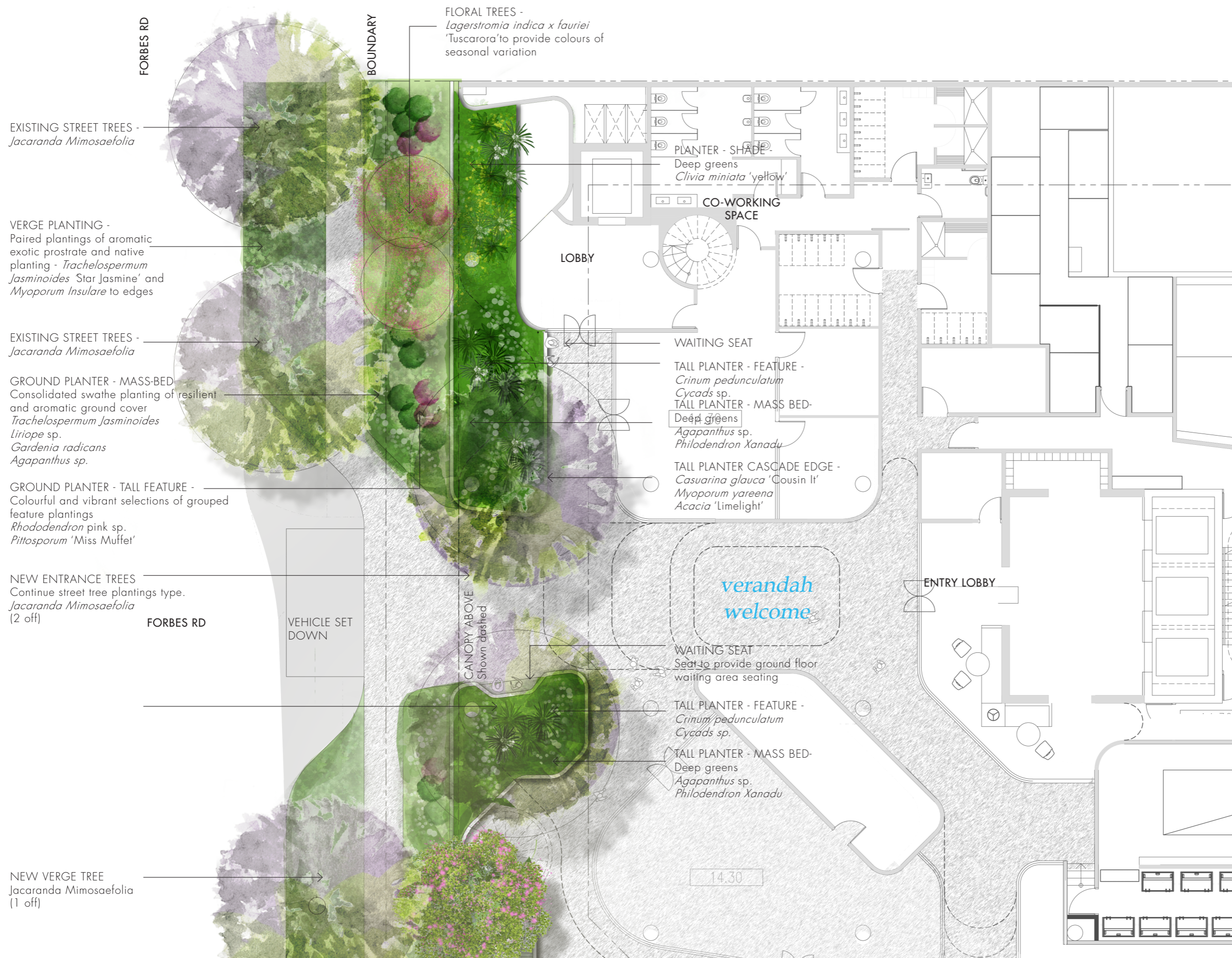
VERGE PLANTING
 Paired plantings of aromatic exotic prostrate and native planting
Trachelospermum Jasminoides 'Star Jasmine'
 and *Myoporum Insulare* to edges

LARGE EXISTING STREET TREES
Platanus Acerifolia sp.

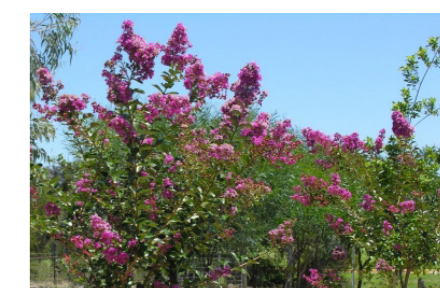
PROPOSED FOOTPATH
 Quality paving to extend to footpath from adjacent terracing, for council approval

OUTDOOR SPIRAL STAIR
 Aromatic climbing plants to surround. *Stephanotis sp.*

LANDSCAPE PLAN
Ground Floor - part B

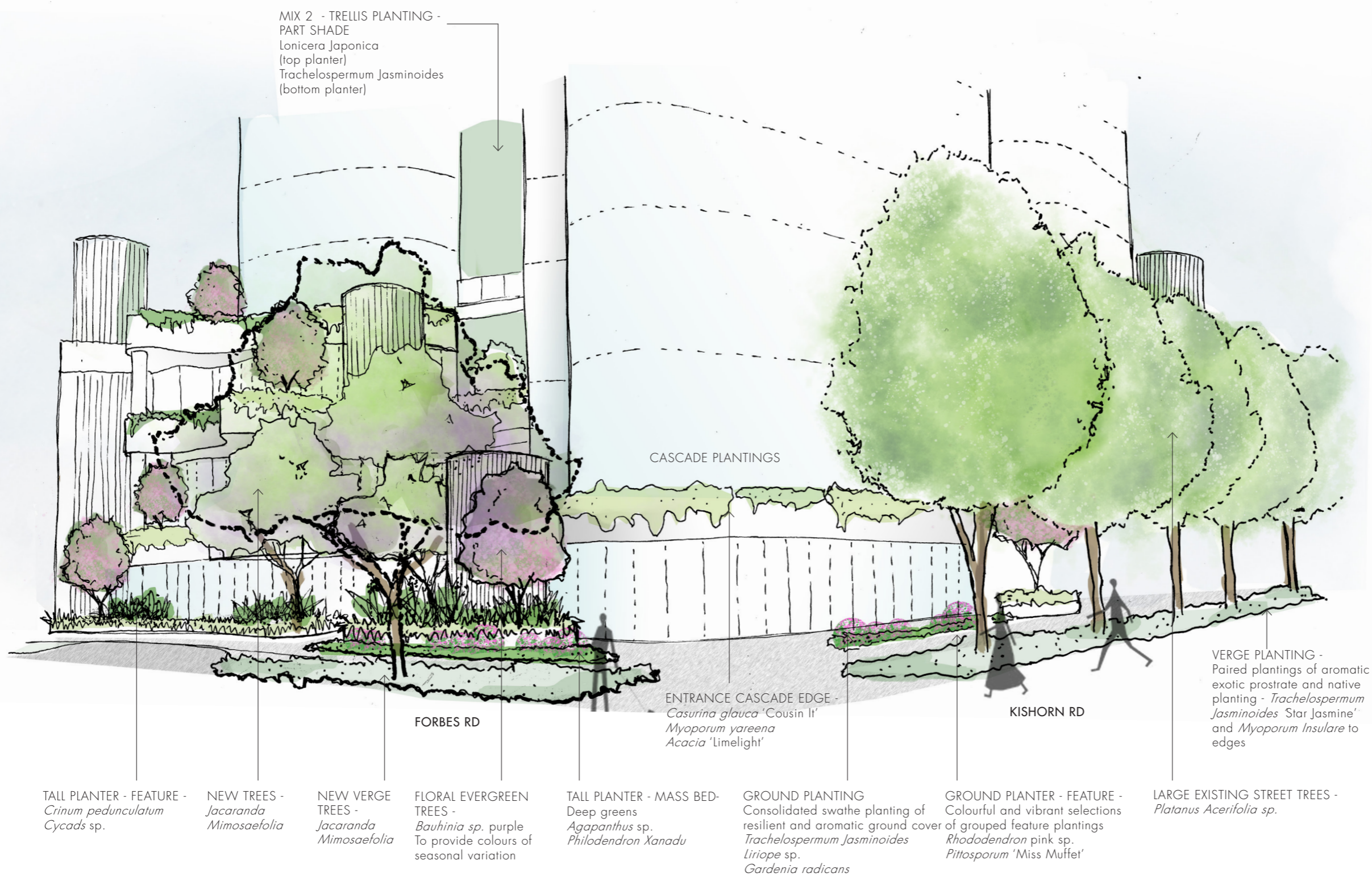


STREET TREE + SKYPARK TREE
Jacaranda mimosaeifolia 'Purple Jacaranda'
Deciduous tree with green soft foliage yellowing prior to shedding.
Height: 10m high x 8m wide.
Flower: purple bell shaped flowers.



FEATURE SMALL TREE
Lagerstroemia indica (Crepe Myrtle)
Specimen tree with a broad spreading crown and masses of flowers. Red-bronze autumn foliage colour and exfoliating bark
Height: 5-6m x 5m wide.
Flower: White/deep pink flowers in summer.

LANDSCAPE SKETCH 01
Ground Floor



TALL PLANTER - BED PLANTING
Philodendron 'Xanadu'
Evergreen, low height shrub with deep foliage
Height: 1-1.5m high x 1m wide



TALL PLANTER - BED PLANTING
Agapanthus orientalis 'Queen Mum'
Glossy strap leaves with flower spikes
Height: 1.5m high x 1.2m wide
Flower: Large white/blue flowers in Summer.



TALL PLANTER - FEATURE PLANTING
Crinum Pedunculatum (Spider Lily)
Broad strappy leaves.
Height: up to 2m high.
Flower: Perfumed white flowers in late Spring to Summer.



TALL PLANTER - FEATURE PLANTING
Cycas Revoluta (Japanese Sago Palm)
Decorative Cycad with symmetrical form.
Height: 1m wide x 1-3m high

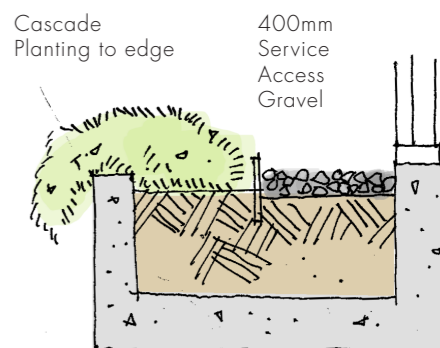
LANDSCAPE PLAN
Level 1 - Overall



PROJECT REFERENCE
Entrance cascade landscape
WOHA - Parkroyal on Pickering



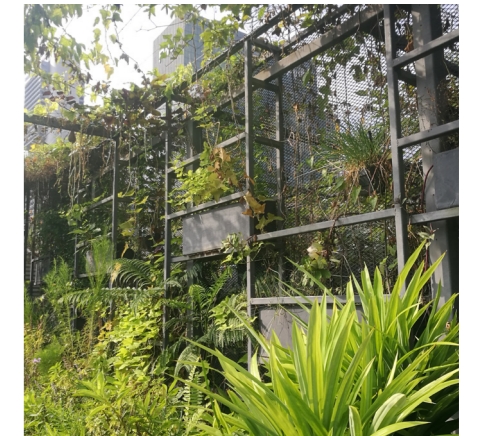
CASCADE EDGE PLANTING
Acacia 'Limelight'
Australian native with lush weeping habit.
Height: 50cm high x 1m wide
Casuarina 'Cousin It'
Prostrate dark green with dense foliage
Height: .15 high x 3m wide



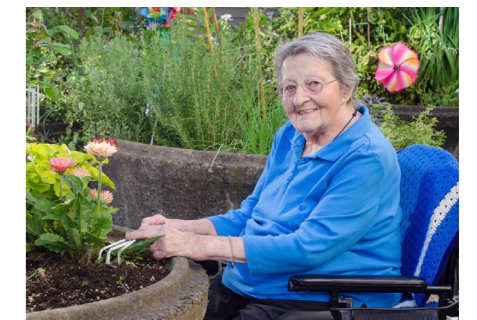
SECTION DIAGRAM A - SOFT EDGE CASCADE

LANDSCAPE PLAN

Level 1 - part A



URBAN ORCHARD (WOHA Office Singapore)

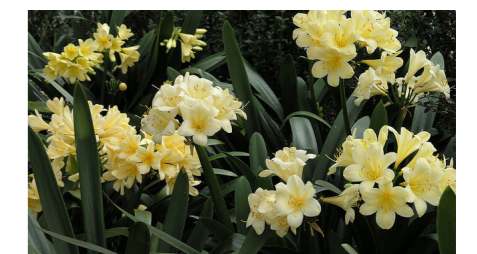


CONSIDERED ACCESS



SMALL FEATURE EVERGREEN TREES

Plumeria Obtusa 'Dwarf Singapore Pink'
Shapely sculptural tree with lush green foliage
Height at Maturity: 2.5m x 1.5m wide.
Flower: Pink flowers with yellow centres.



FEATURE SHADE PLANTS

Clivia miniata 'yellow'
Lush strappy leaves, ideal for shade
Height at Maturity: 0.6m x 0.6m wide.
Flower: Yellow flowers

GROUND SHADE PLANTING-
Philodendron 'xanadu'
Arthropodium sp

FEATURE SHADE PLANTS-
Clivia miniata 'yellow' sp.
Cycad sp

LANDSCAPE PLAN

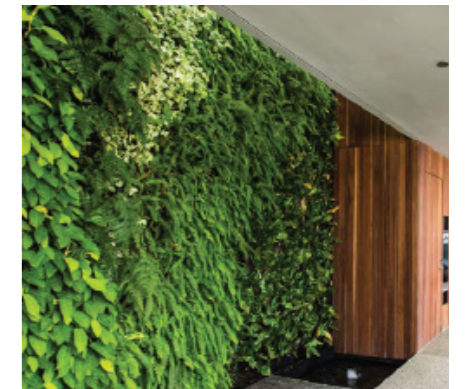
Level 1 - part B



Raphiolepis. - Reference Image
 ornamental with splendid display of flowers

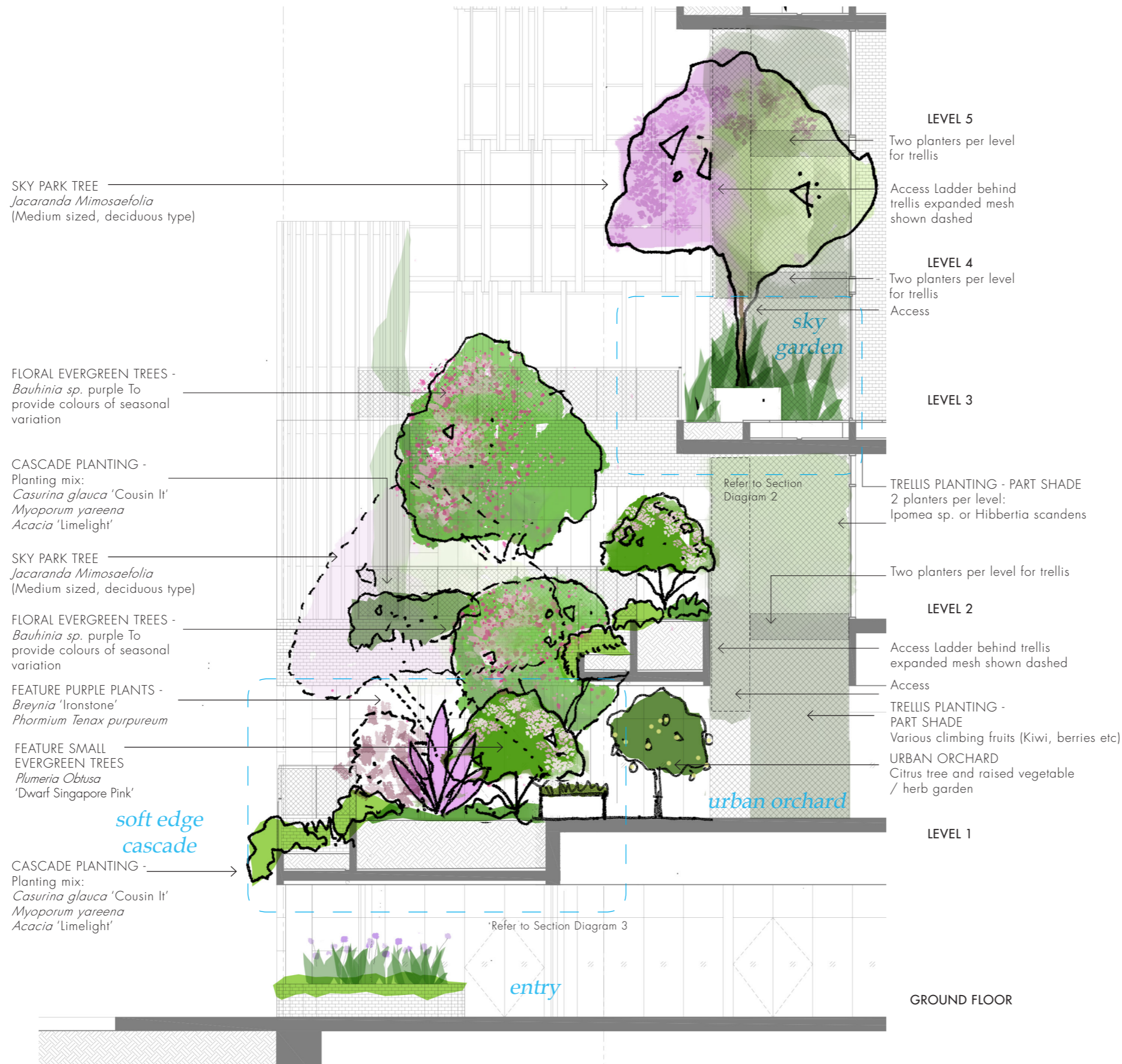


Rhododendron sp.- Reference Image
 Shade and beautiful colours



PROJECT REFERENCE
 Green wall in Park Royal - WOHA
 Green wall in Cloisters

LANDSCAPE DETAIL
SECTION DIAGRAM B



SECTION DIAGRAM B - URBAN ORCHARD + SKY GARDEN



FEATURE PURPLE PLANTS
Phormium tenax Purpureum -
Evergreen perennial, ornamental and robust
Height: 1.8m high x 1.2m wide



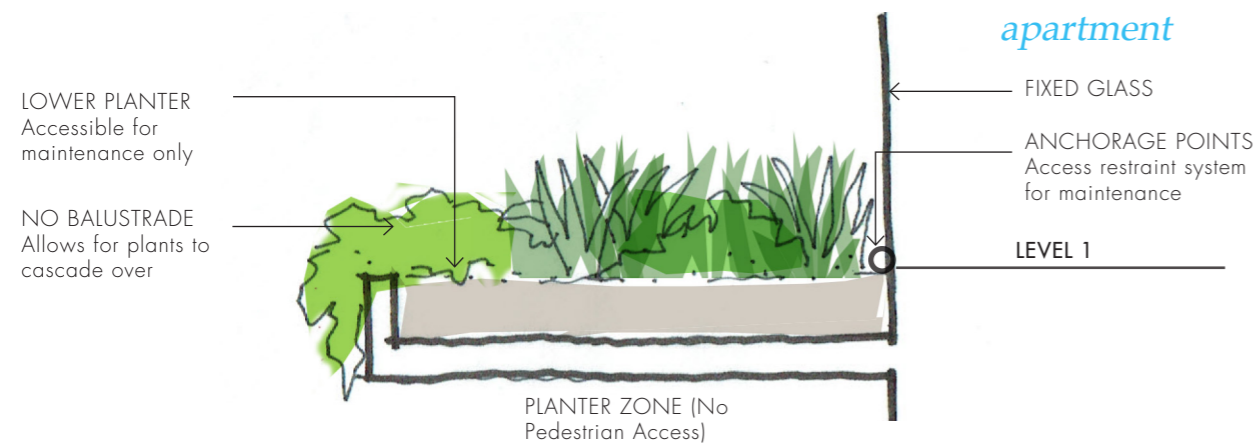
NATIVE FEATURE PURPLE PLANTING
Breynia 'Ironstone'
Evergreen, red-brown foliage plant with a graceful weeping habit. Small green flowers
Height: 1.5-2m high x 1m wide



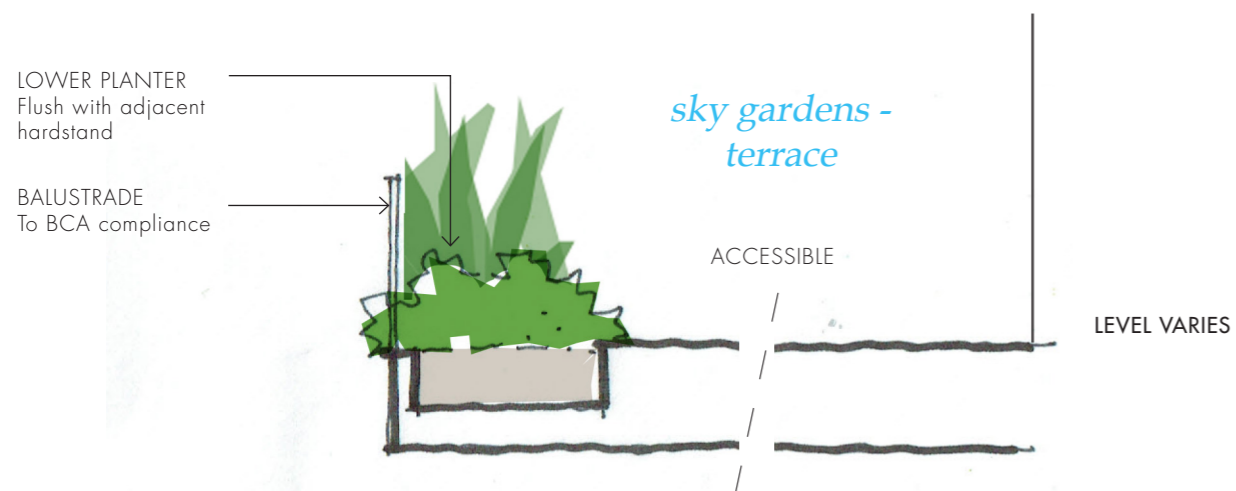
FLORAL EVERGREEN TREES
Bauhinia Purpurea 'Purple Butterfly Tree'
Medium sized orchid tree. Butterfly shaped leaf.
Height: 6-10m x 6m wide.
Flower: large purple/pink flowers in Autumn



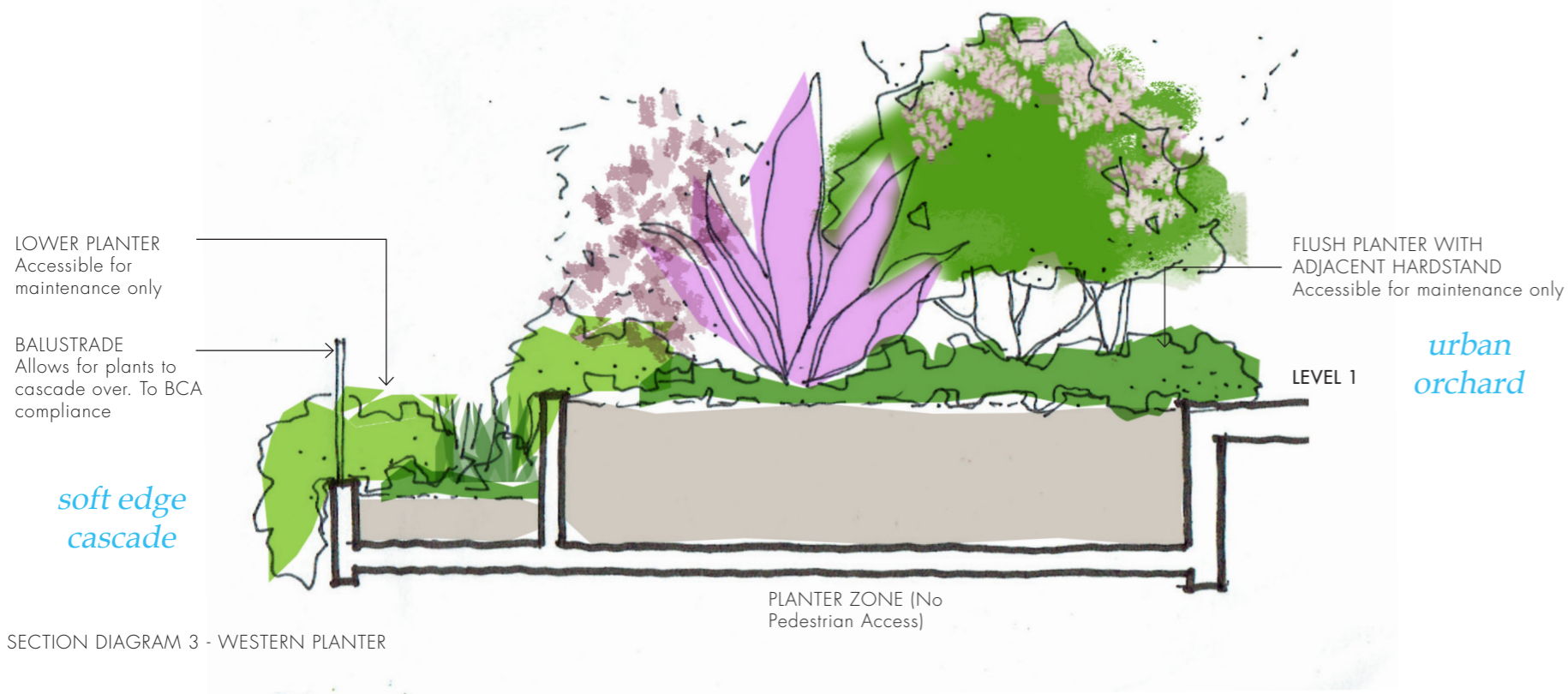
REFERENCE IMAGE - URBAN ORCHARD



SECTION DIAGRAM 1 - SOUTHERN PLANTER



SECTION DIAGRAM 2 - SKY GARDEN TYPICAL

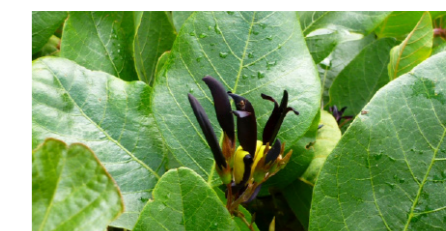


SECTION DIAGRAM 3 - WESTERN PLANTER

LANDSCAPE PLAN
Level 2 - Sky Park - Overall



Hydrangea sp. - Reference Image
An Applecross favourite



TRELLIS PLANTING
Kennedia Nigricans 'Black Coral Pea'
Vigorous climber, drought resistant
Height: 6m high x 5m wide

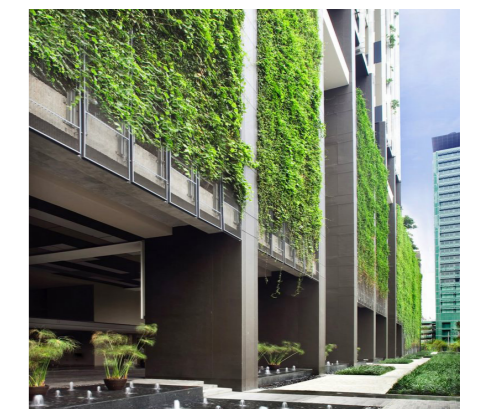


PART SHADE TRELLIS PLANTING
Ipomea sp.
Evergreen climber, purple flowers
Height: 3-5m high x 2m wide



FLOWER GARDEN
Liriope Muscari sp.
Broad strappy leaves with purple flowers
Height: 50cm high x 50cm wide

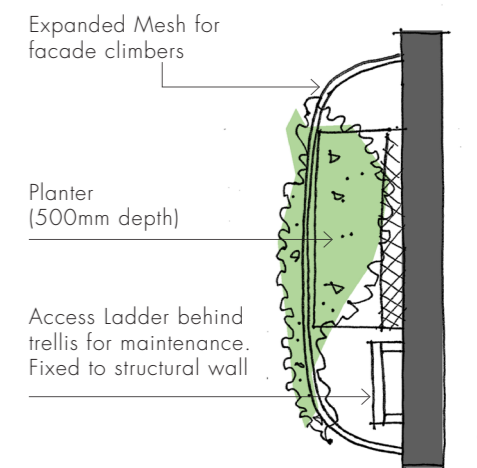
LANDSCAPE PLAN
Level 3 Overall



PROJECT REFERENCE
Entrance trellis landscape
WOHA - The Met Bangkok



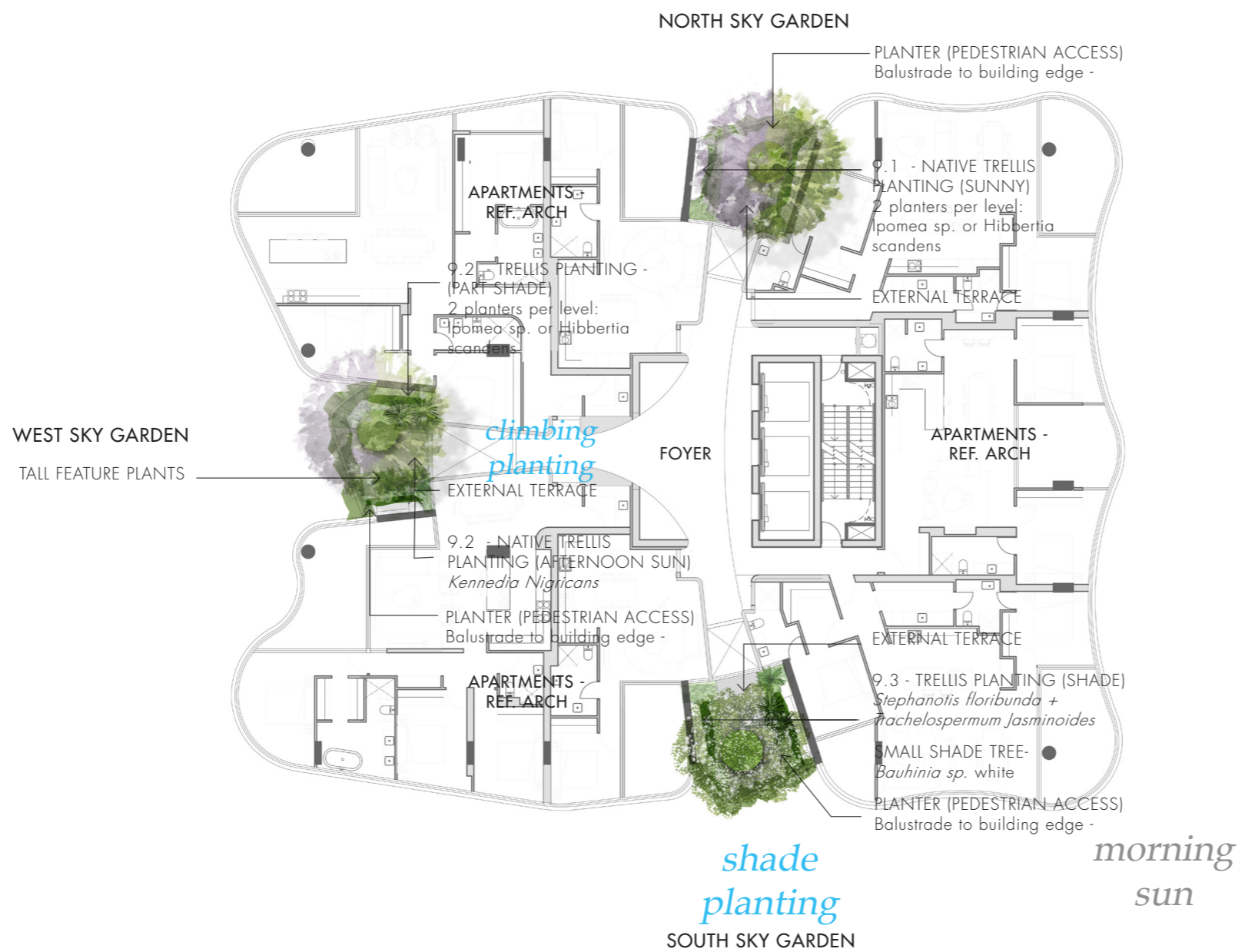
PROJECT REFERENCE
Climbing planting to web mesh trellis system



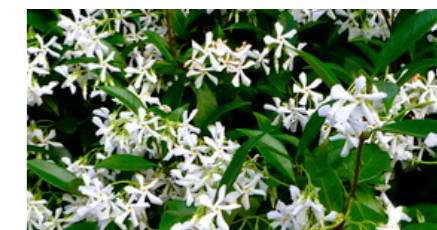
FACADE CLIMBER TRELLIS CONCEPT
(PLAN DIAGRAM)

LANDSCAPE PLAN
Levels 9 (Levels 19 sim)

afternoon
sun



SKY GARDEN SHADE TREE
Bauhinia alba 'White Hong Kong Orchid'
Medium sized orchid tree. Butterfly shaped leaf
Height: 5-6m x 4m wide.
Flower: large white flowers in Spring



SHADE TRELLIS PLANTING
Trachelospermum jasminoides 'Star Jasmine'
Evergreen vine, hardy, aromatic
Height: 6m high

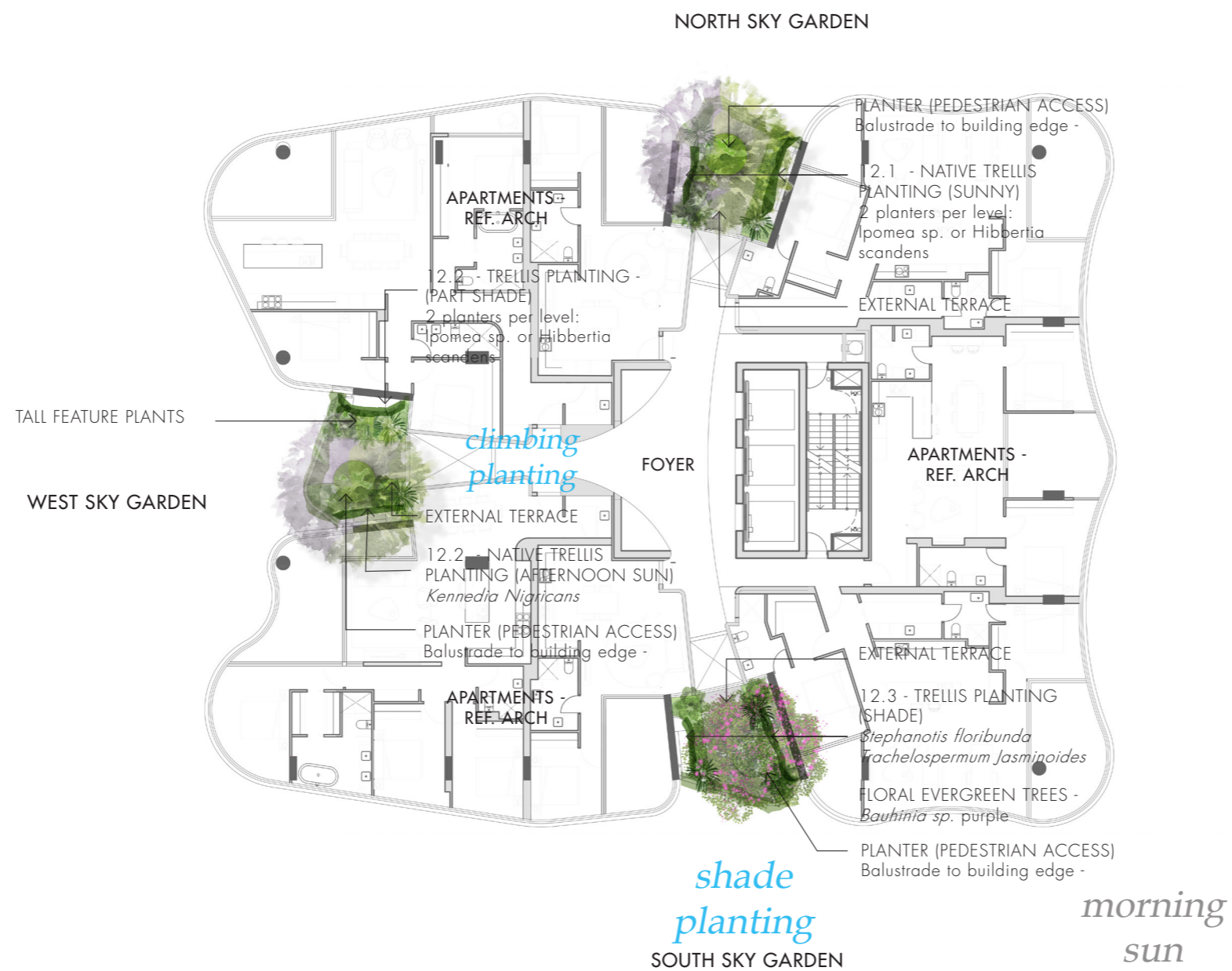


SHADE TRELLIS PLANTING
Stephanotis floribunda
Evergreen with large glossy leaves
Height: 2m high x 2m wide

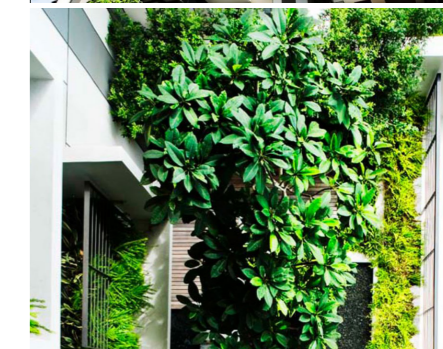


MASS BED PLANTING - SHADE
Arthropodium cirratum (NZ Rock Lily)
Broad leaf lily, Mass white flowers

afternoon
sun



SKYGADREN SHADE TREE
Bauhinia Purpurea 'Purple Butterfly Tree'
Medium sized orchid tree. Butterfly shaped leaf.
Height: 6-10m x 6m wide.
Flower: large purple/pink flowers in Autumn



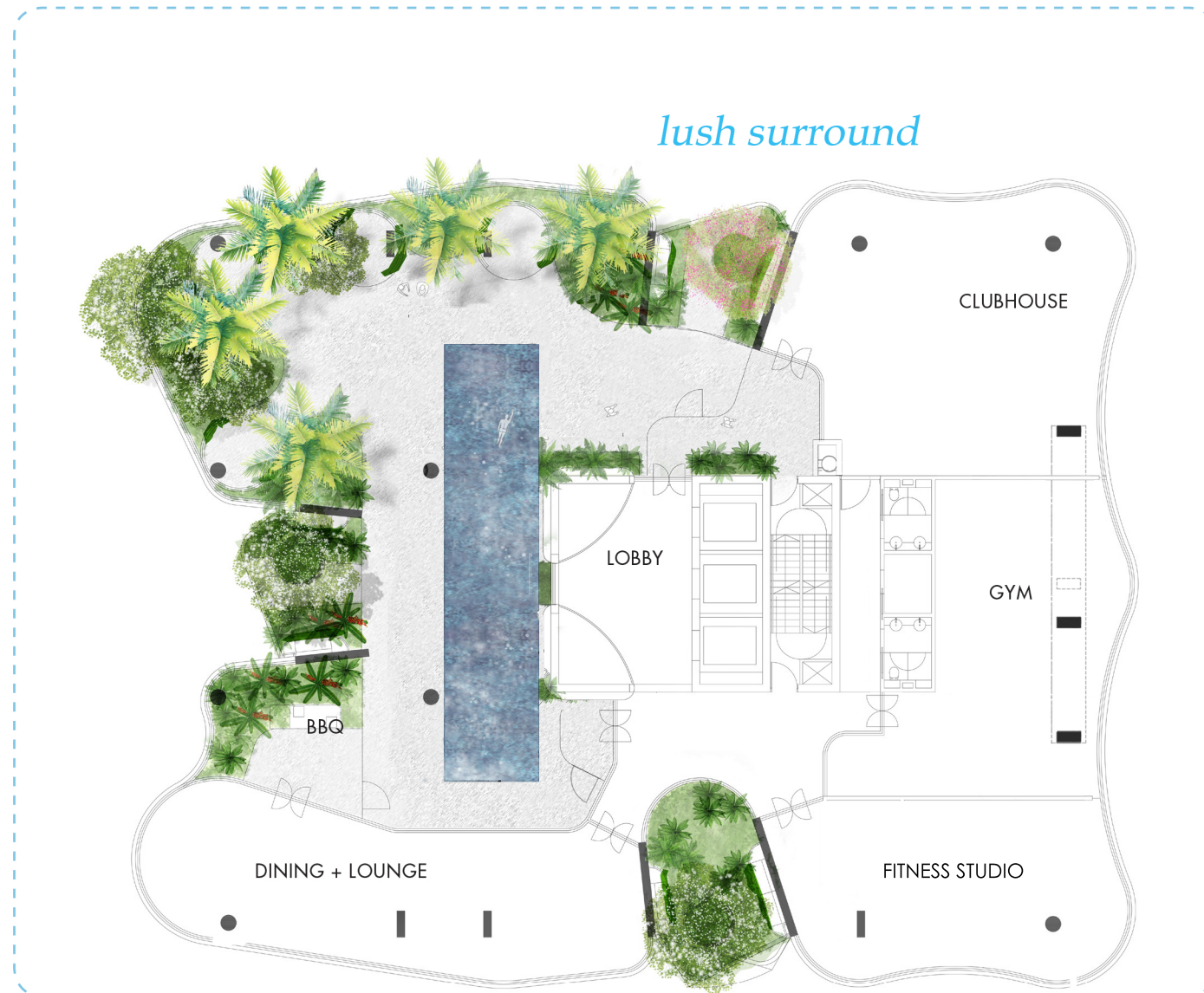
PROJECT REFERENCE
Sky terrace
WOHA - Newton Suites



Blechnum Lady Luck - Silver Lady Fern
Fast growing fern palm like foliage.
Height: 1.2m high x 1m width
Flowers: No flowers

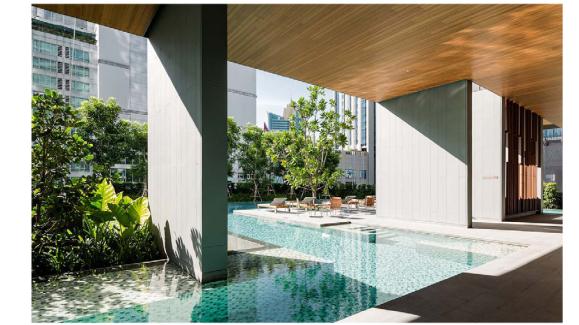
LANDSCAPE PLAN
Level 15 Overall

afternoon
sun

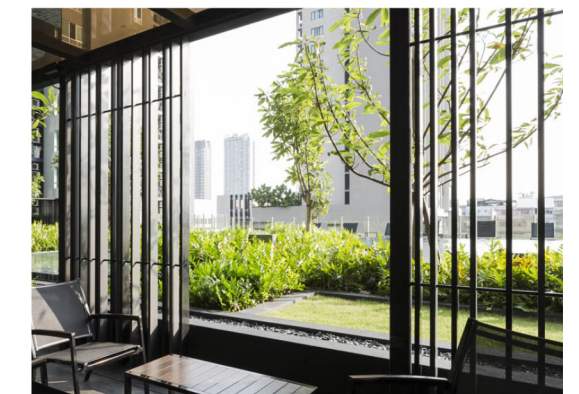
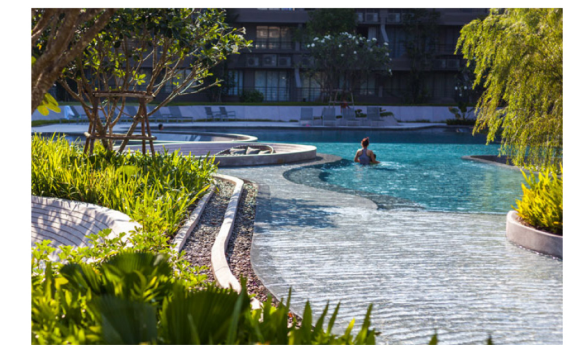


refer to PART A

morning
sun



PROJECT REFERENCE
Shaded pool environment
SHMA - Hyde condominium Sukhumvit 13, Bangkok

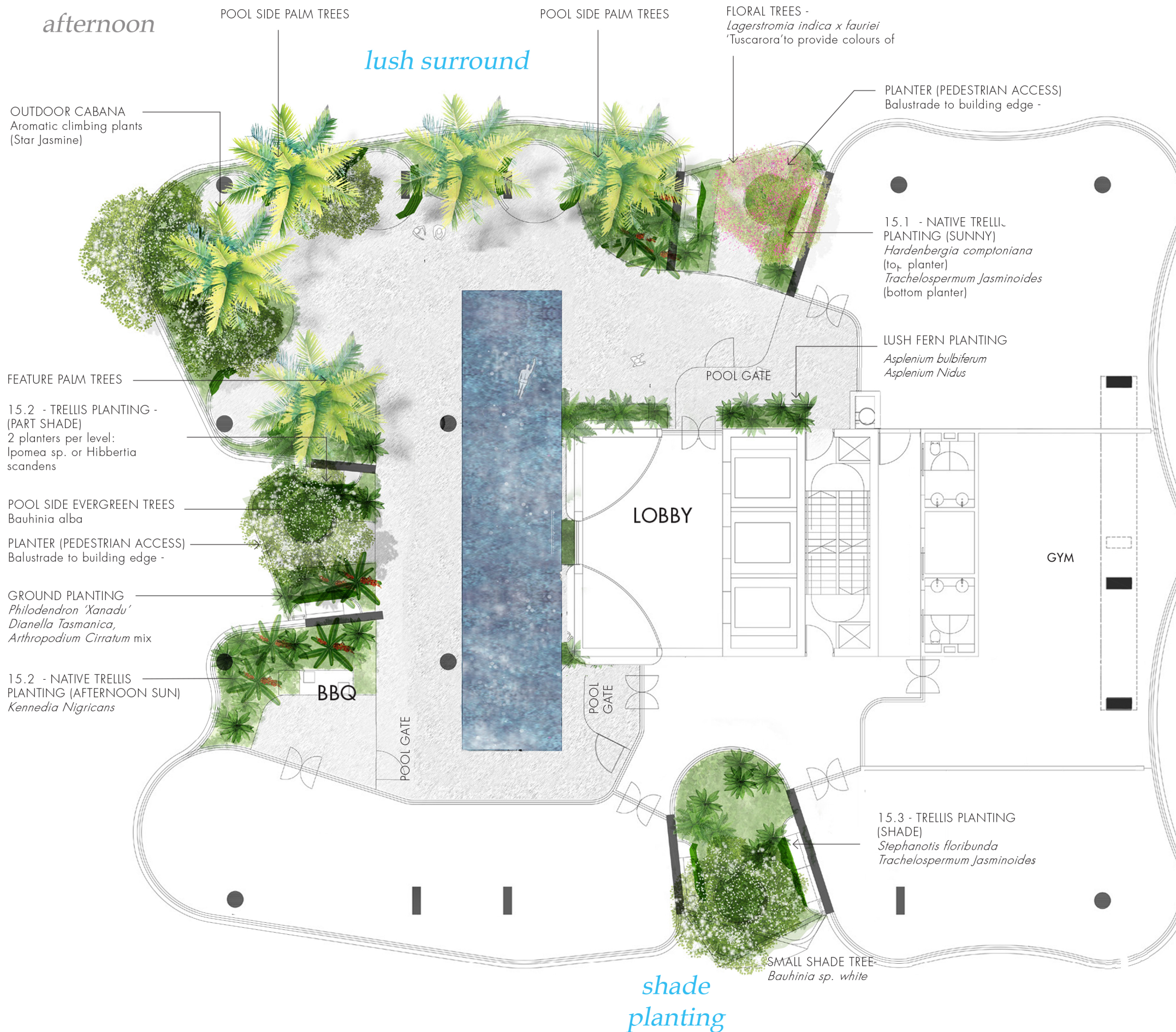


PROJECT REFERENCE
Varied activities to pool
SHMA - Baan san ngam



PROJECT REFERENCE
Outdoor Cabana
WOHA - Alila villas Ulawatu

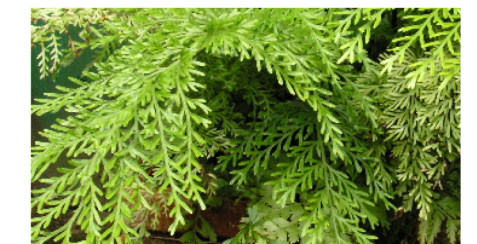
LANDSCAPE PLAN
Level 15 - Part A



POOL SIDE PALMS
Grouped plantings of medium size palms to provide a distinct landscape environment. Australian selections will be made where available. i.e Australian Fan Palm (wind resistant and sun tolerant)



Cyathea cooperi 'Australian Tree Fern'
Height: 2-5m high x 1-3m wide

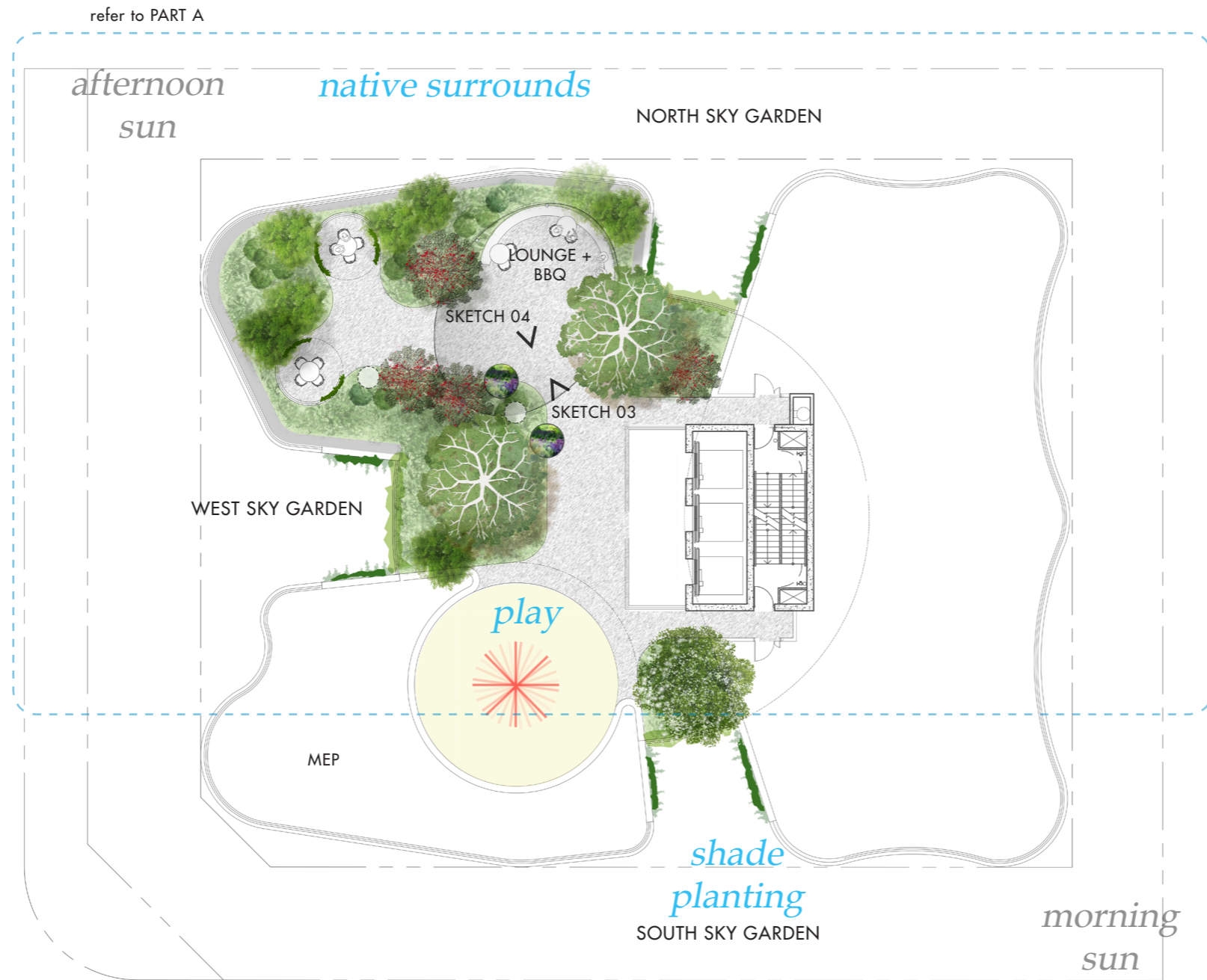


FERN PLANTING
Asplenium bulbiferum 'Hen and Chicken Fern'
Hardy, native fern, weeping habit.
Height at maturity: 30cm high x 50cm wide
Flower: yellow flowers



FEATURE FERN PLANTING
Asplenium Nidus 'Bird's Nest Fern'
Fern that is naturally epiphytic
Height: 1m x 1.5m width

LANDSCAPE PLAN
Level 20 Rooftop



MJA

LEVEL 1, SUITE 6,
T (08) 9388 0333 w
© WOHA Pte Ltd

REV.	DATE
1	18.11.18
2	29.01.19



PROJECT REFERENCE
BBQ and Dining Amenities
ARIA - Hillam Architects w/ landscape by CAPA



PROJECT REFERENCE
Play opportunities (Berliner playground + festival)



PROJECT REFERENCE
Native surrounds, city views
William Dangar - Cleveland rooftop

CLIENT
APEX VIEW F
PROJECT
FORBES RES
PROJECT ADDRESS
10-14 FORB
APPLECROSS
MJA PROJECT NUME

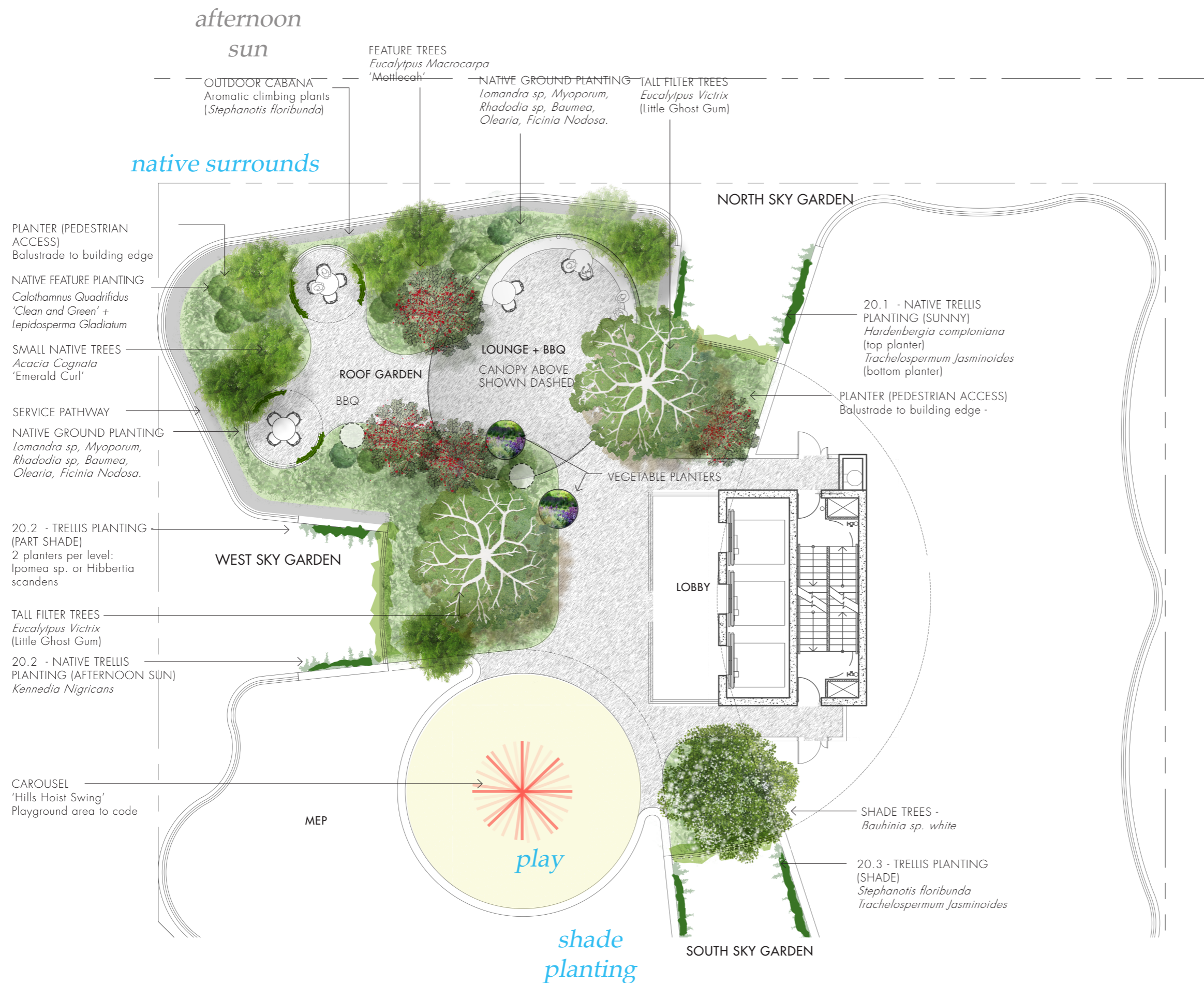
18003
TRUE NORTH

SCALE
1:200 @ A3



TALL FILTER TREES
Eucalyptus Victrix 'Little Ghost Gum'
Height at maturity: 8m high x 4m wide
Flower: small cream

LANDSCAPE PLAN
Level 20 Rooftop - Part A



SMALL NATIVE + RESILIENT TREE
Acacia Cognata 'Emerald Curl'
Height at maturity: 3-5m high x 3-3.5m wide
Flower: Yellow



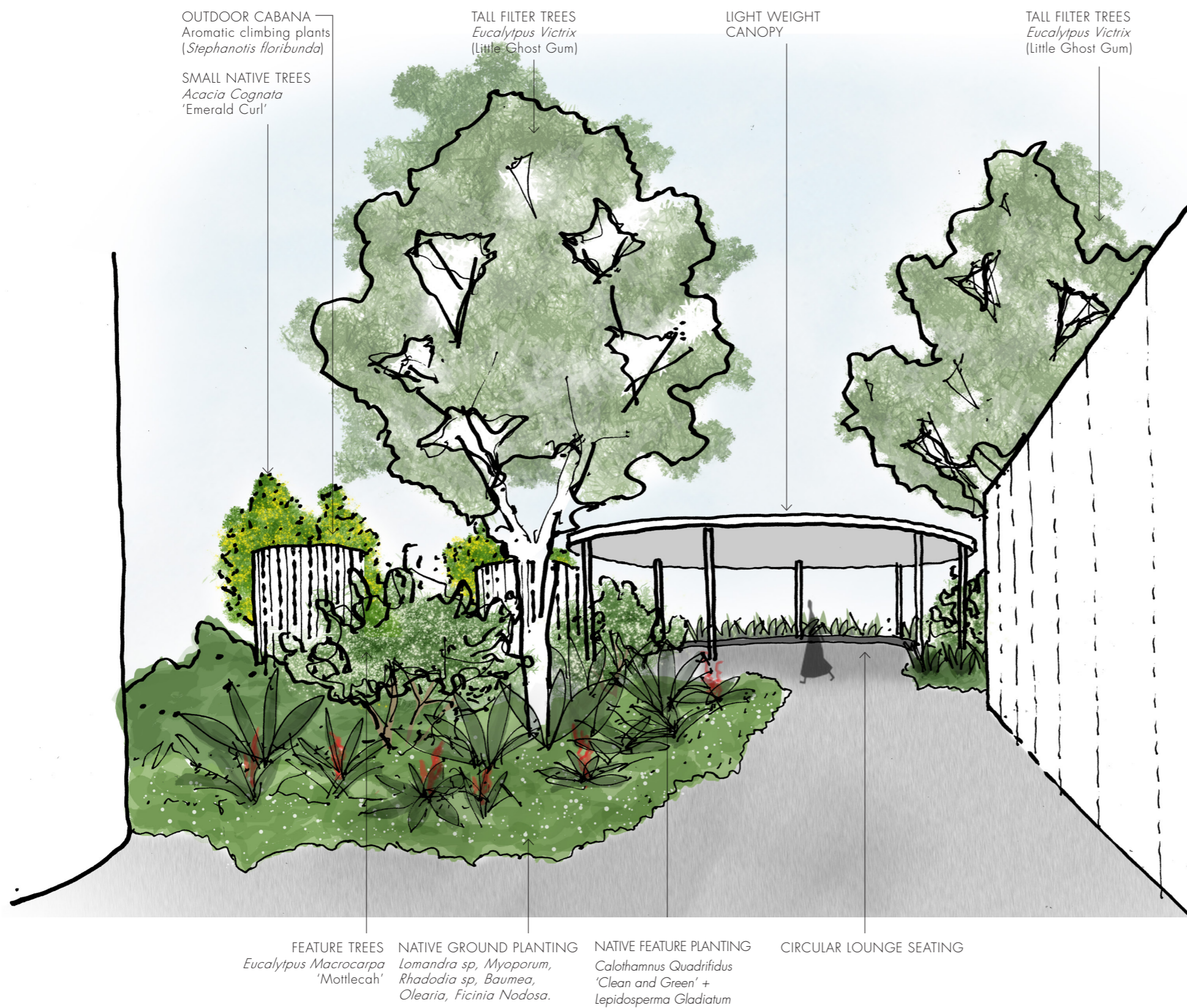
FEATURE NATIVE TREES
Eucalyptus Macrocarpa 'Mottlecah'
Height at maturity: 3m high x 2m wide
Flower: Red



NATIVE GROUND PLANTING
Olearia 'Ghost Town' (Daisy Bush)
Australian Native shrub with silver foliage.
Height: 50cm-1m high x 1m wide



Atriplex Cinerea - "Coastal Saltbush"
Low spreading ground cover with grey leaves
Height: 20cm high x 2m w.



NATIVE FEATURE PLANTING
Calothamnus Quadrifidus 'Clean and Green'
Australian native, bright green foliage
Height: 1m high x 1m wide
Flowers: red



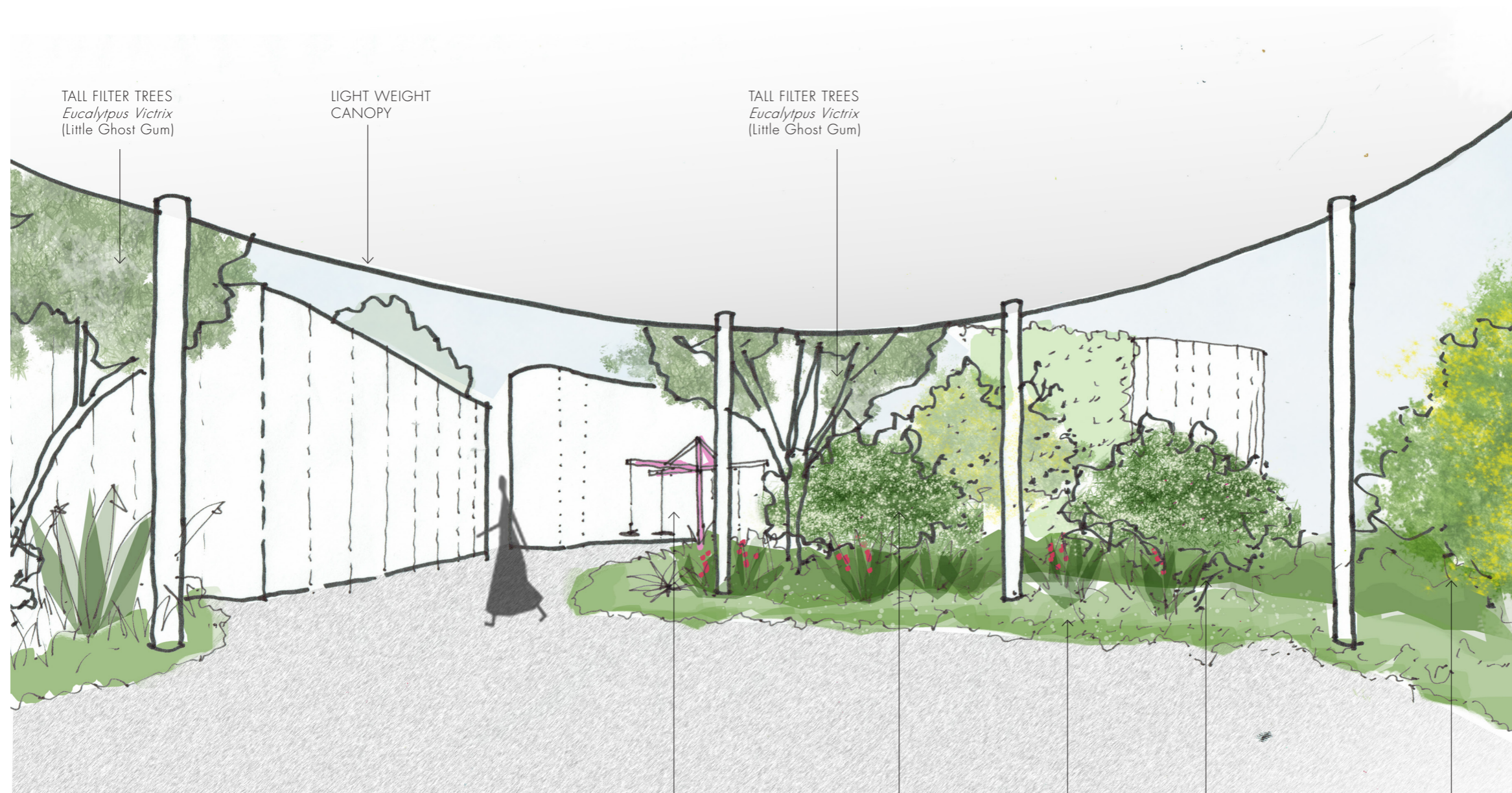
Lepidosperma Gladiatum 'Coastal Edge'
Australian native, clumping strap leaves
Height: 1.5m high x 1.5m wide
Flowers: bronze



Myoporum parvifolium 'Yareena'
A prostrate cascade planting with clean foliage.
Height: 10cm high x 1m wide



IMAGE REFERENCE
Circular Lounge Seating



TALL FILTER TREES
Eucalyptus Victrix
(Little Ghost Gum)

LIGHT WEIGHT
CANOPY

TALL FILTER TREES
Eucalyptus Victrix
(Little Ghost Gum)

CAROUSEL
'Hills Hoist Swing'

FEATURE TREES
Eucalyptus Macrocarpa
'Mottlecah'

NATIVE GROUND PLANTING
Lomandra sp, Myoporum,
Rhagodia sp, Baumea,
Olearia, Ficinia Nodosa.

NATIVE FEATURE PLANTING
Calothamnus Quadrifidus
'Clean and Green' +
Lepidosperma Gladiatum

SMALL NATIVE TREES
Acacia Cognata
'Emerald Curl' Shrubbery