

AREA 22 & 23, ST LEONARDS SOUTH 26-50 PARK RD & 27-47 BERRY ROAD & 48-54 RIVER ROAD

LANDSCAPE DA

JUNE 2023

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SITE CONTEXT



Aerial Image of Site Context - Not to scale

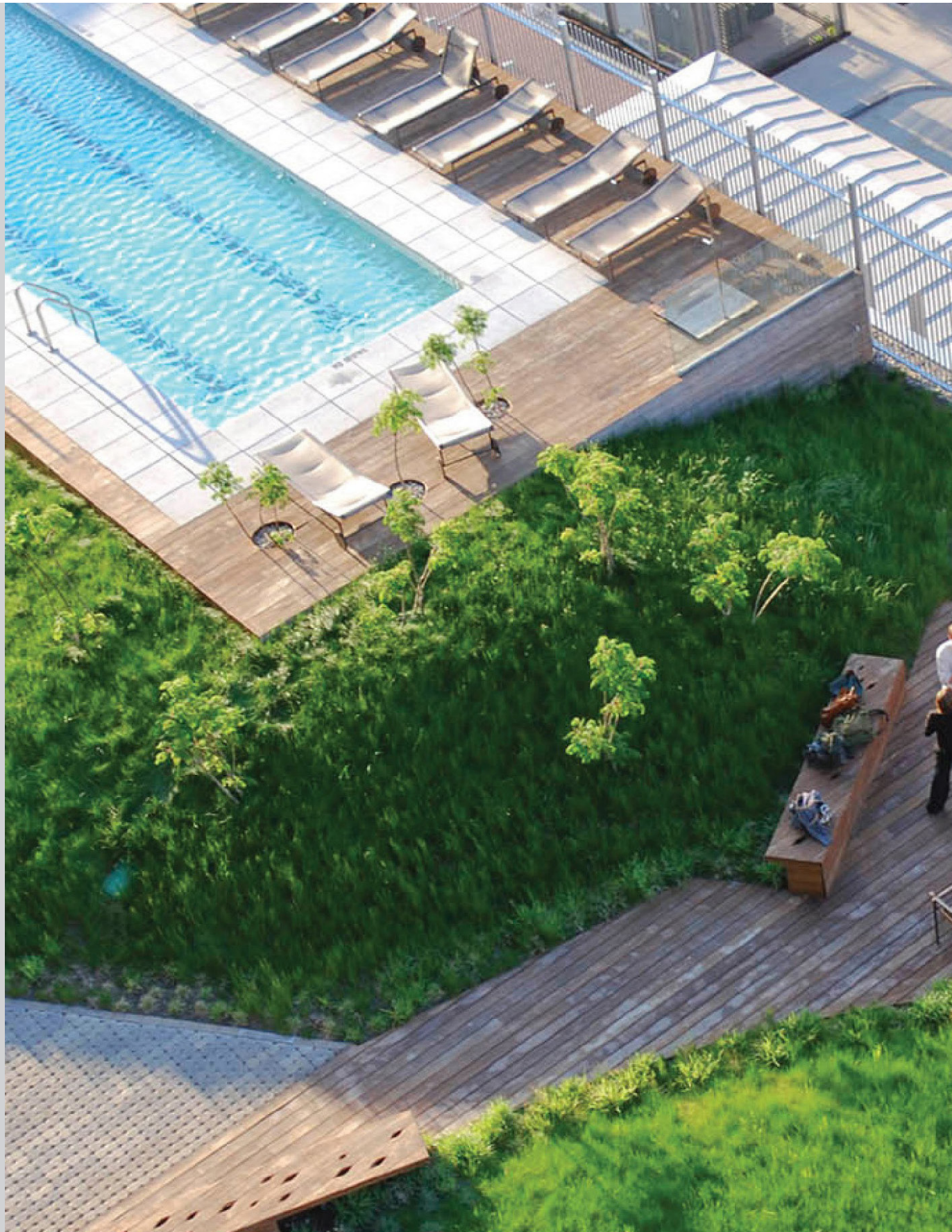


LEGEND

- | | | | | |
|---------------|---------------|------------------------|----------------------|----------------|
| Site boundary | Railway | Distance to open space | Main commercial area | Main Road |
| Open spaces | Train Station | Existing cycle routes | Creek line | Sydney Harbour |



DESIGN STATEMENT



STREET INTERFACES

The street design starts by retaining all existing trees wherever possible. Selective removal of some trees is required to deliver the driveway entry and new road (located in accordance with the DCP). Upgrades to the streetscape will be in accordance with Council requirements.

NEW ROAD

The new road has been designed as a conventional road in accordance with the DCP. It is noted that this is inconsistent with the St Leonards South Landscape Masterplan (LMP), which stipulates the new road should be designed as a shared street in accordance with RMS guidelines (including flush kerbs and paving thresholds).

GROUND LEVEL COS

AREA 22

The Northern site communal open space provides residents with amenity consistent with the LMP, including a sheltered BBQ area, level lawn area, and extensive deep soil planting. A nature play space is co-located with the BBQ area and northern deep soil planting – creating a focus of social activity with elevated views south down the green spine. The design takes into consideration the future park connection to the north, ensuring a zone clear of large trees for potential path connection. Planting buffers to the edges provide a comfortable relationship between communal and private terraces; offering both amenity and privacy. Permeable paving combines with the generous planting and lawn areas to maximise utilisation of the deep soil for tree growth and water infiltration.

AREA 23

The Southern site communal open space features a pool as the central feature, located to maximise solar access and amenity for the surrounding apartments. The steep level transition from New Road is celebrated with a pair of staircases that frame the pool and connect residents to a belvedere terrace that overlooks the pool. A gym is located below the terrace and connects directly to the pool deck via a compliant pool fence. A generous planted edge to the pool utilises deeper soil areas for larger trees appropriately offset from the building facades, offers natural shade to the pool deck, dappled screening of the pool area from overlooking apartments.

The void space below pool deck is utilised for additional soil volume, and will receive passive irrigation through the permeable deck surface. A cabana to the southern end of pool provides structured shade and a poolside lounging area that also overlooks the open lawn to the south. This lawn space will provide the doorstep convenience of a pocket park, and will be of particular value to residents with small pets and children.

ROOFTOP COS

The communal rooftop provides expansive views in all directions, and is designed to maximise future adaptability for the needs of residents. Key amenities to be provided for will be rooftop cooking and dining facilities, weather protected work from home facilities, and lounges for social gathering. Particular attention is paid to providing wind, rain, and sun protection, combining seating with a range of aspects and also commercial grade retractable umbrellas for adaptable shade.

PLANTING PALETTE

The planting palette is inspired by the underlying geology from local native vegetation communities. A high diversity of species will ensure a resilient landscape that exhibits flower and foliage colour throughout the seasons and contributes to a healthy urban ecology.

DESIGN STATEMENT

STREETSCAPES

Park Road and Berry Road streetscapes will be designed in accordance with Council’s current public domain standards for pavement treatments and street trees and reinforce the existing street character. Footpaths on both streets have been widened to 3m and 1.8m respectively with stratavault below in places for additional root expansion. The undergrounding of power lines along Park Road give us the opportunity to replace the existing Paper Bark street trees as they have been deformed by lopping beneath overhead wires. The Podocarpus trees along Berry Road will be retained and inter-planted with Flindersia’s to provide additional street greening and shade. The 4m building setbacks along both streets provides space for medium sized trees and planting in deep soil, providing a buffer for private residences.

Along the River Road verge, existing Eucalyptus trees will be supplemented by additional trees of the same species. Raised entries perched above multi terraced landscape areas with shade tolerant planting, provide private amenity and a green outlook for residents.

The DCP proposed new road connecting Park Road and Berry Roads has been developed with the intention to minimise hard surfaces and maximise pedestrian permeability. The street makes use of alternative paving finishes and a narrow, one way throat to slow traffic and link north/south Green Spines. Instead of paved sidewalks and hard kerbs, the road is flanked by flush landscaped edges, planting and seating to control vehicles and provide larger softscape offerings. A standard width road is required to the east and west to avoid loading of cars on both Berry and Park Road.

PROTECTION FROM THE ELEMENTS

Access to sun, shade, shelter and natural ventilation have been maximised by selecting a variety of tree species to suit varying requirements across the site. Where trees have been used, a mixture of light-canopied and heavy shade trees have been chosen to create a diversity of spaces that ensure comfortable levels of protection in a range of conditions.

VIEWS/PRIVACY

Visual privacy needs of the residences have been addressed through tree and plant selection. The desire for an outlook to public areas is balanced with the need for privacy internally and externally, during day and night.

AMENITY

The design will incorporate a variety of amenities such as a central playground, intimate seating nooks, BBQ and alfresco dining area and an open grass lawn. This is in line with providing a rich collection of spaces and activities for people of all ages and backgrounds. Many of these spaces are sheltered by either canopy trees or the adjacent buildings that will provide summer shade and protect people from the elements.

ACCESSIBILITY

All residents of the new development may access and enjoy the communal areas. Universal access to AS1428 has been incorporated into communal spaces where possible, connecting walkways and building entries without compromising design quality.

Gently graded pathways will provide accessibility for all age groups and degrees of mobility; ensuring that residents can access site amenities comfortably. Paths are rationally laid out into a clear and identifiable pathway network assisting orientation for visitors, and access to and from building entries and service areas.

LIGHTING

Lighting of external spaces will be provided to ensure access points and pathways are well lit, improving visibility and the sense of safety. Lighting of the communal open spaces will ensure safe levels of illumination for movement, whilst considering the impact on private residences as well as the surrounding bushland. Unobtrusive lighting will be incorporated to enable night time recreational use. Careful consideration will be taken in selecting lighting fixtures which do not spill light into the surrounding lots.

URBAN ELEMENTS

Elements such as public art, paving, furniture, fencing and lighting will be developed further during detailed design. Refer page 38 for proposed materials & finishes.

DRAINAGE AND IRRIGATION

Surface drainage grates will be provided at the interface of all building entries to prevent ingress of water into internal spaces. Drainage grates are also to be provided at the interface between boundary paved surfaces where grades would sheet water from private to public areas. Please refer to civil drawings for locations.

Consideration has been given to the incorporation of low water demand and low maintenance plant species in all areas to reduce mains consumption and fertilizer contamination of drainage water.

Irrigation will be provided to all soft landscape areas on structure and deep soil areas within the green spine.

Refer to page 39 for the approach on Green Infrastructure and Climate Positive Design

DEEP SOIL

Total deep soil area within the site boundaries is 2568.2m2 (22.2%). Permeable paving is proposed to the communal open spaces to maximise permeable surfaces.

SOIL

The planting will comprise a complementary mix of indigenous species. For native vegetation, soil profiles will be provided which have modest nutrient levels, particularly phosphorus. Suggested material would equal Australian Native Landscapes ‘Low P’ mixture. Consideration will be given to the planting arrangement to ensure that species that are sensitive to nutrient will be grouped together.

PLANT ESTABLISHMENT AND MAINTENANCE

A landscape maintenance contractor will be engaged to keep all plant material in a state of health and vigour after practical completion. The appointed contractor must provide the Superintendent with a proposed maintenance works program for approval. The landscape contractor must keep a logbook of all maintenance works undertaken and include ‘works to date’ information with all progress payment invoices. Works will include, but not be limited to:

- Monitoring the irrigation system on a weekly basis to ensure plants are not under or over irrigated,
- Replacing dead plant material to achieve a complete cover of planting without obvious gaps in planting at final completion,
- Replenishment of mulch as required to provide cover to the soil surface minimizing weed encroachment,
- Suppression of weed growth,
- Low phosphorus nutrient will be provided to indigenous plant groupings, and a broad spectrum fertiliser applied to exotic plant groupings to satisfy differing chemical requirements,
- Selective pruning / crown lifting / canopy shaping of trees to remove potential future structural defects, establish branching above head height, etc.

CRIME PREVENTION

Crime prevention through environmental design (CPTED) principles has been carefully considered to inform the landscape design of these areas. The placement of fences, services and vegetation adhere to the following key principles; surveillance, access control, territorial reinforcement, space management. These areas will only be accessible to residents within the complex.

LANDSCAPE CONCEPT | CONNECTING TO COUNTRY

The site rests on a geological transition between the Wianamatta Group Shales and Hawkesbury Sandstone resulting in soils associated with Turpentine-Ironbark Forest and Blue Gum High Forest.

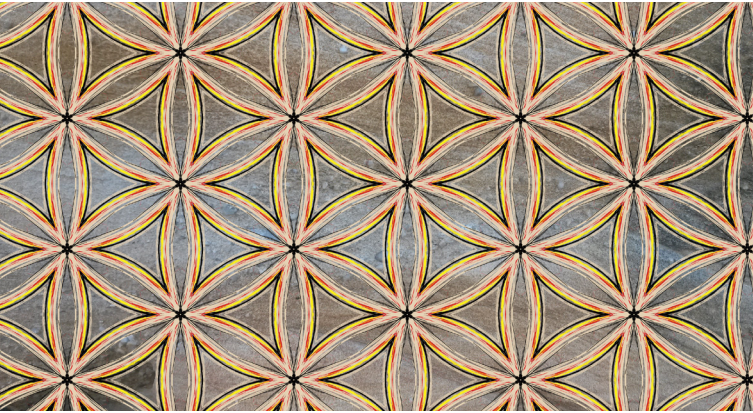
The vegetation communities endemic to site offer an abundance in colour and texture through their foliage, flowers, seedpods and berries.

Endemic plant species have been chosen to strengthen the sense of place and connection to Country. Offering a year round display of colour and texture through flowers and foliage.

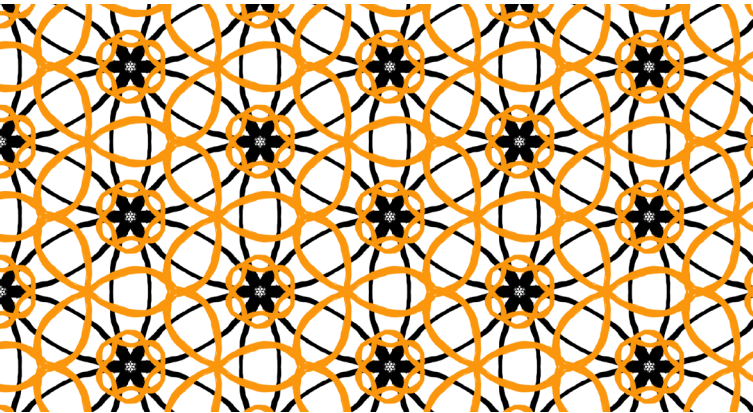
Bold displays of golden wattle, dusty red Kennedia, orange Glochidion berries and the blue and purple flowers of Dianella & Hardenbergia flower throughout the year.

The local Hawkesbury Sandstone will be used in the landscape for retaining and for seating elements.

The motif of tessellated patterned imagery will be reinterpreted in the architecture and communal gathering areas in screening elements and shade structures.



Art work by Matt Fellingham



Art work by Matt Fellingham

ENDEMIC COLOUR PALETTE



Acacia longifolia



Kennedia rubicunda



Glochidion ferdinandi

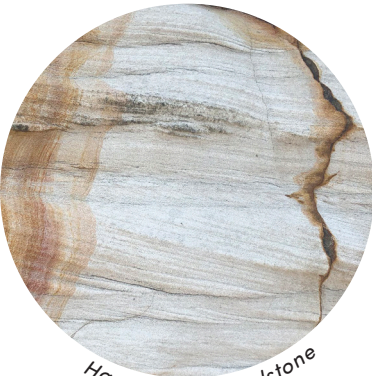


Hardenbergia violacea



Brachychiton populneus

SITE GEOLOGY

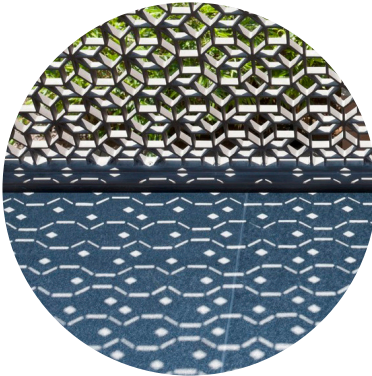
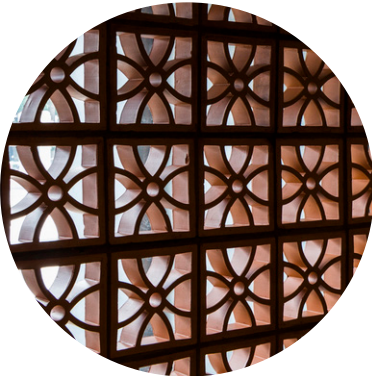


Hawkesbury Sandstone

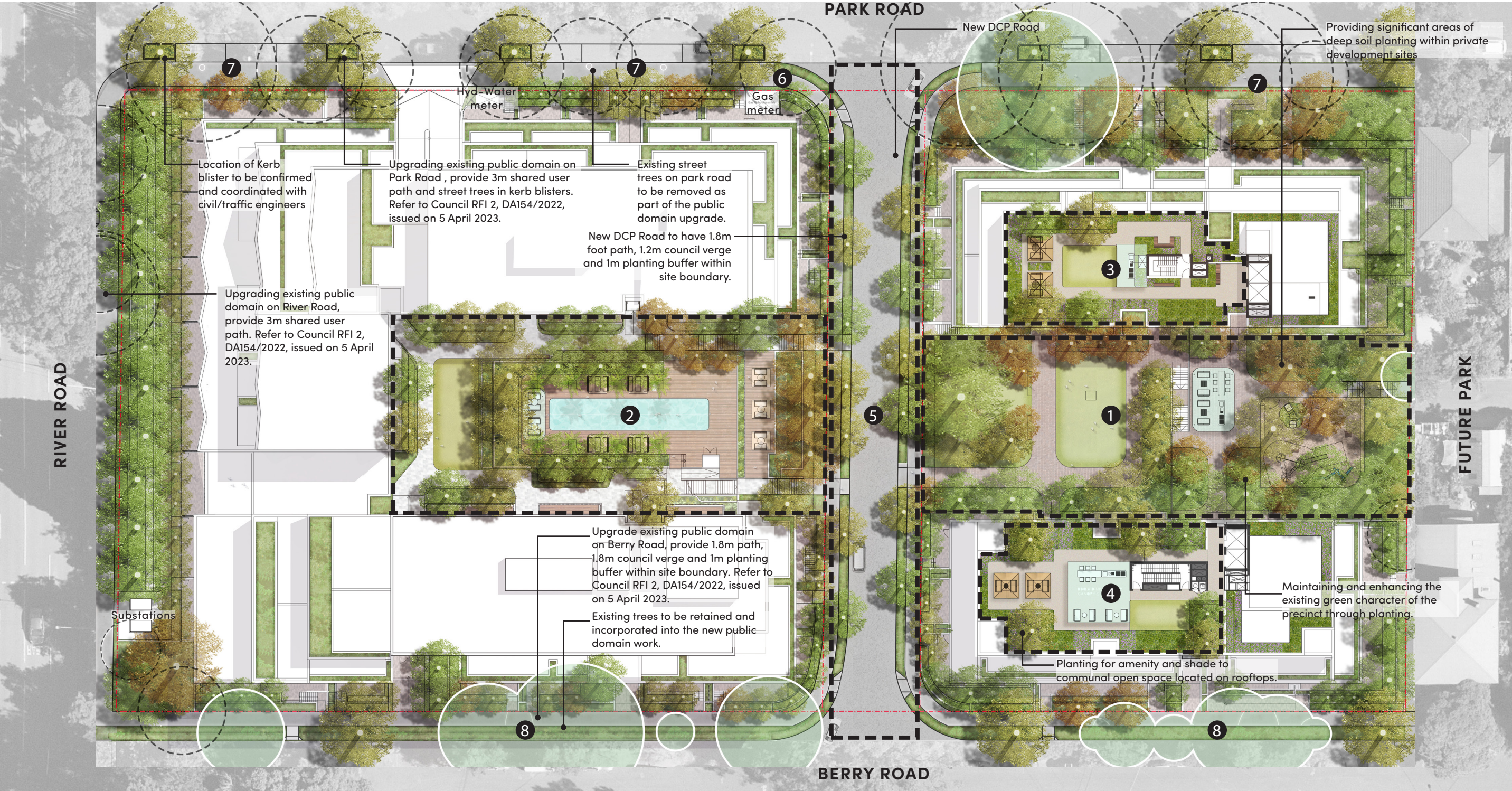


Wianamatta Group Shales

SCREENING & SHADE STRUCTURE PRECEDENTS



MASTERPLAN | KEY SPACES

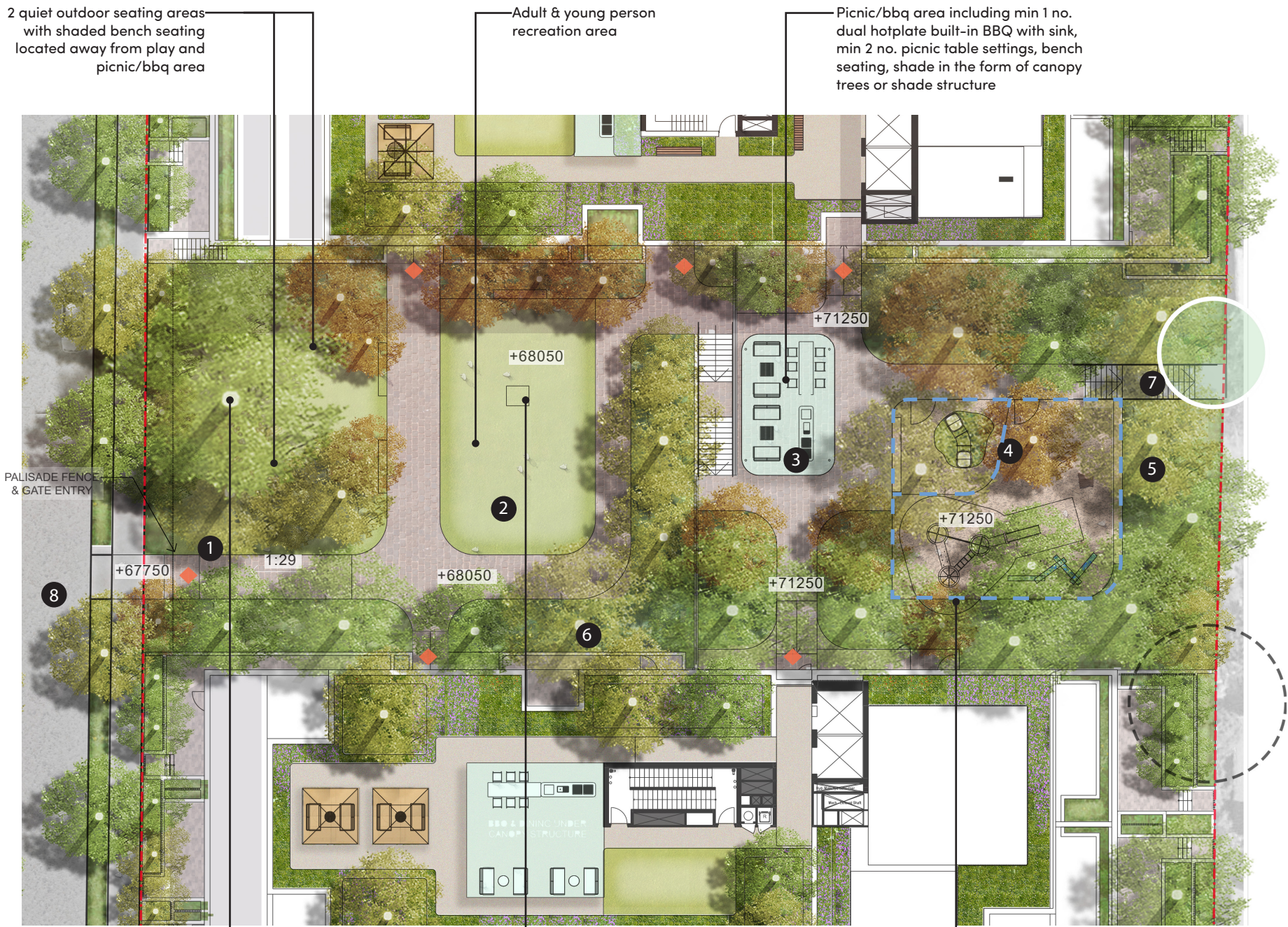


NOTE:
Public domain work in the Masterplan is tentative and subject to further refinement. Final layout and design will be developed at CC stage in compliance with Council final public domain strategy for St Leonards South.

LEGEND

- | | |
|---|------------------------------------|
| 1. Area 22 Landscape (Ground floor to Level 02) | 5. New DCP Road (Ground floor) |
| 2. Area 23 Landscape (Basement 02) | 6. Street Landscape (Ground floor) |
| 3. Podium Landscape (Level 07) | 7. Existing trees to be removed |
| 4. Podium Landscape (Level 12) | 8. Existing trees to be retained |

LANDSCAPE PLAN | GREEN SPINE AREA 22 - GROUND FLOOR TO LEVEL 02



2 quiet outdoor seating areas with shaded bench seating located away from play and picnic/bbq area

Adult & young person recreation area

Picnic/bbq area including min 1 no. dual hotplate built-in BBQ with sink, min 2 no. picnic table settings, bench seating, shade in the form of canopy trees or shade structure

PALISADE FENCE & GATE ENTRY

Proposed location for the replacement tree for Tree No. 98 *Eucalyptus teriticornus*. ie: Same specimen in 400Lt pot size

Potential location for public art

- Playground safety fence to be provided to separate play areas for toddlers (ages 6 months - 3 years) and young children (ages 3-8 years+);
- Min 70% shade cover to be provided by Trees;
- Play equipment to include: mound and tunnel, robe play, fortuna play with bridge and slides, balance beams, etc.



KEY PLAN



KEY

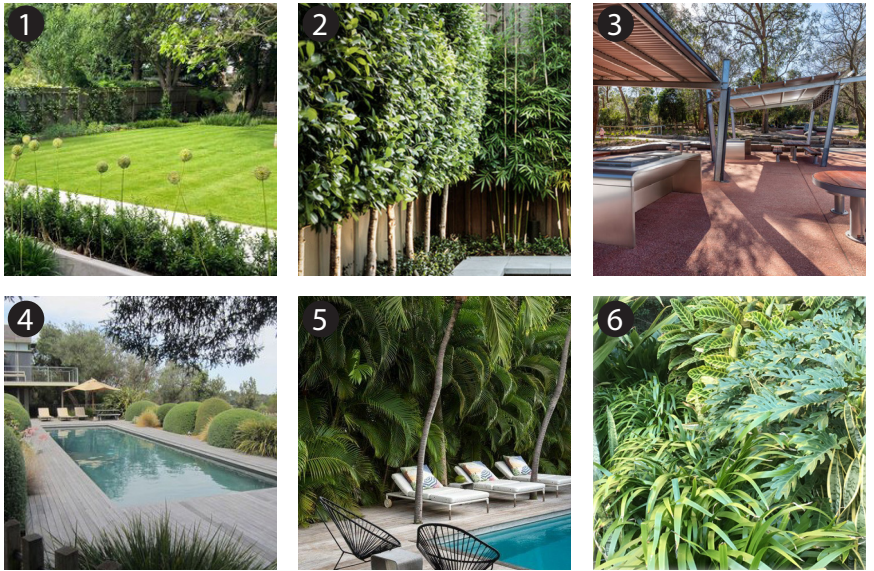
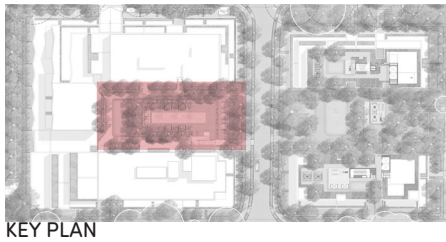
- Graded pathway
- Open lawn with art work
- Alfresco dining/BBQ
- Nature play
- Planted embankment
- Buffer planting
- Potential future connection to proposed park
- DCP Proposed New Road

LEGEND

- Site boundary
- Trees
- Lawn
- Mass planting
- Permeable unit paving
- Mulch softfall
- Entry
- Playground safety fence

Note: The current design responds appropriately to the proposed building entry levels. We consider the strong level transition as a positive feature of the design, creating a dramatic elevated belvedere space that looks down the green spine. The level change also maximises usable space on the upper and lower terraces (as opposed to terraced planters).

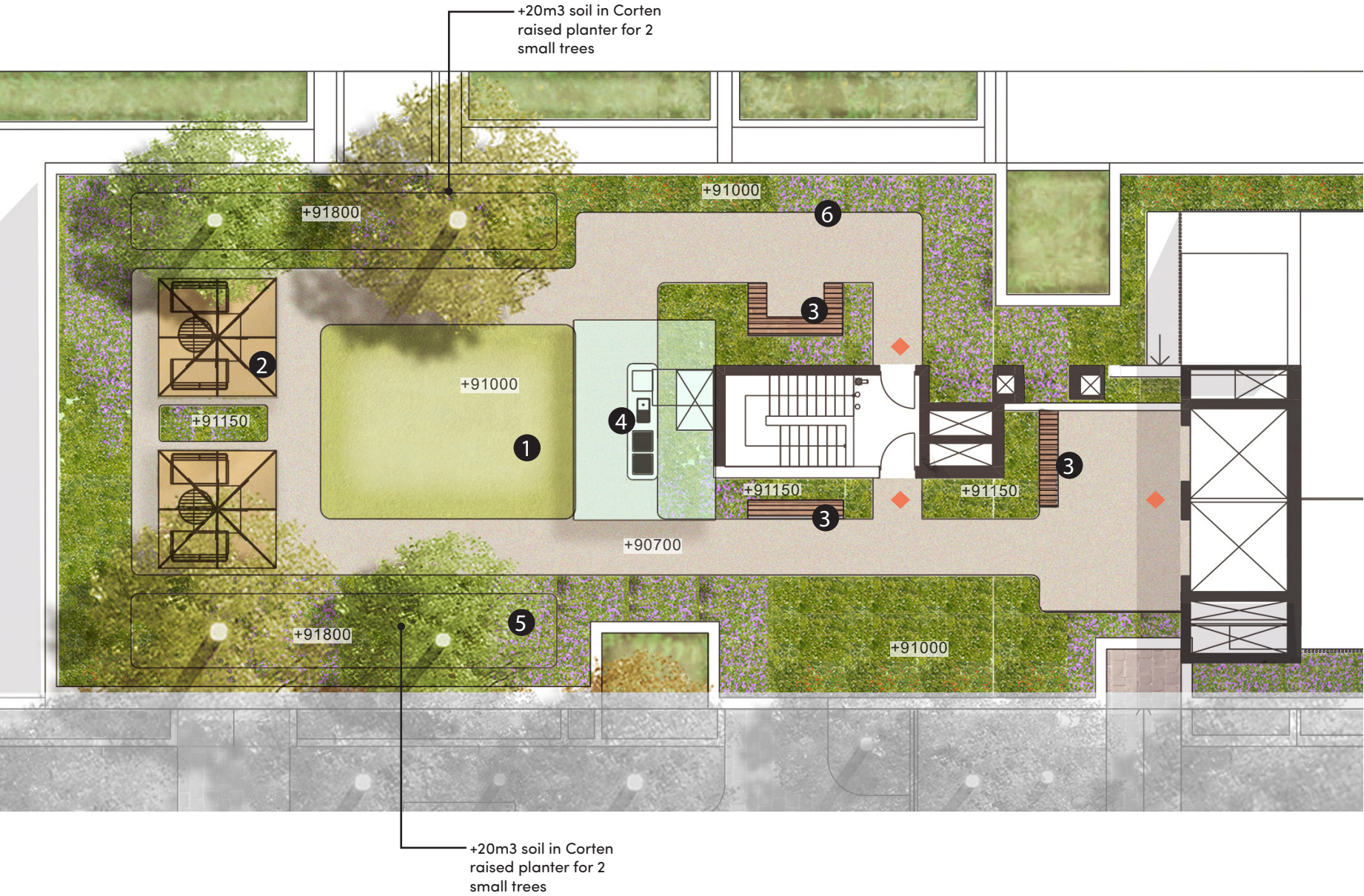
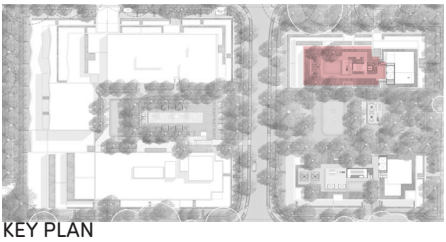
LANDSCAPE PLAN | GREEN SPINE AREA 23 - BASEMENT 02



- KEY**
- 1. Open lawn
 - 2. Screen planting
 - 3. Canopy Structure
 - 4. 25m Lap pool
 - 5. Pool deck with sun lounges & palms
 - 6. Buffer planting
 - 7. Cascading planting
 - 8. Terrace lounging
 - 9. DCP Proposed New Road
- LEGEND**
- Site boundary
 - Trees
 - Lawn
 - Mass planting
 - Composite Timber Decking
 - Concrete unit paving
 - Pool
 - Entry



LANDSCAPE PLAN | PODIUM LANDSCAPE - LEVEL 07 BUILDING C

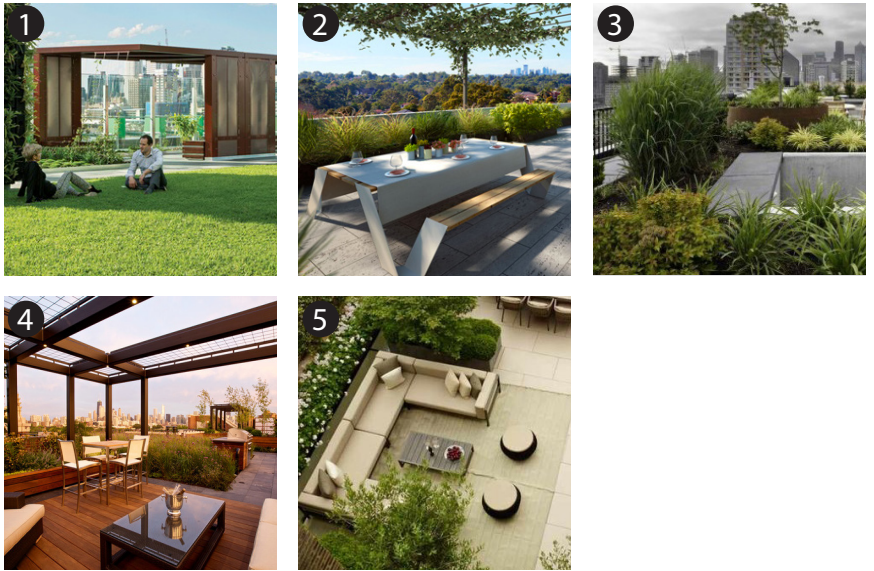
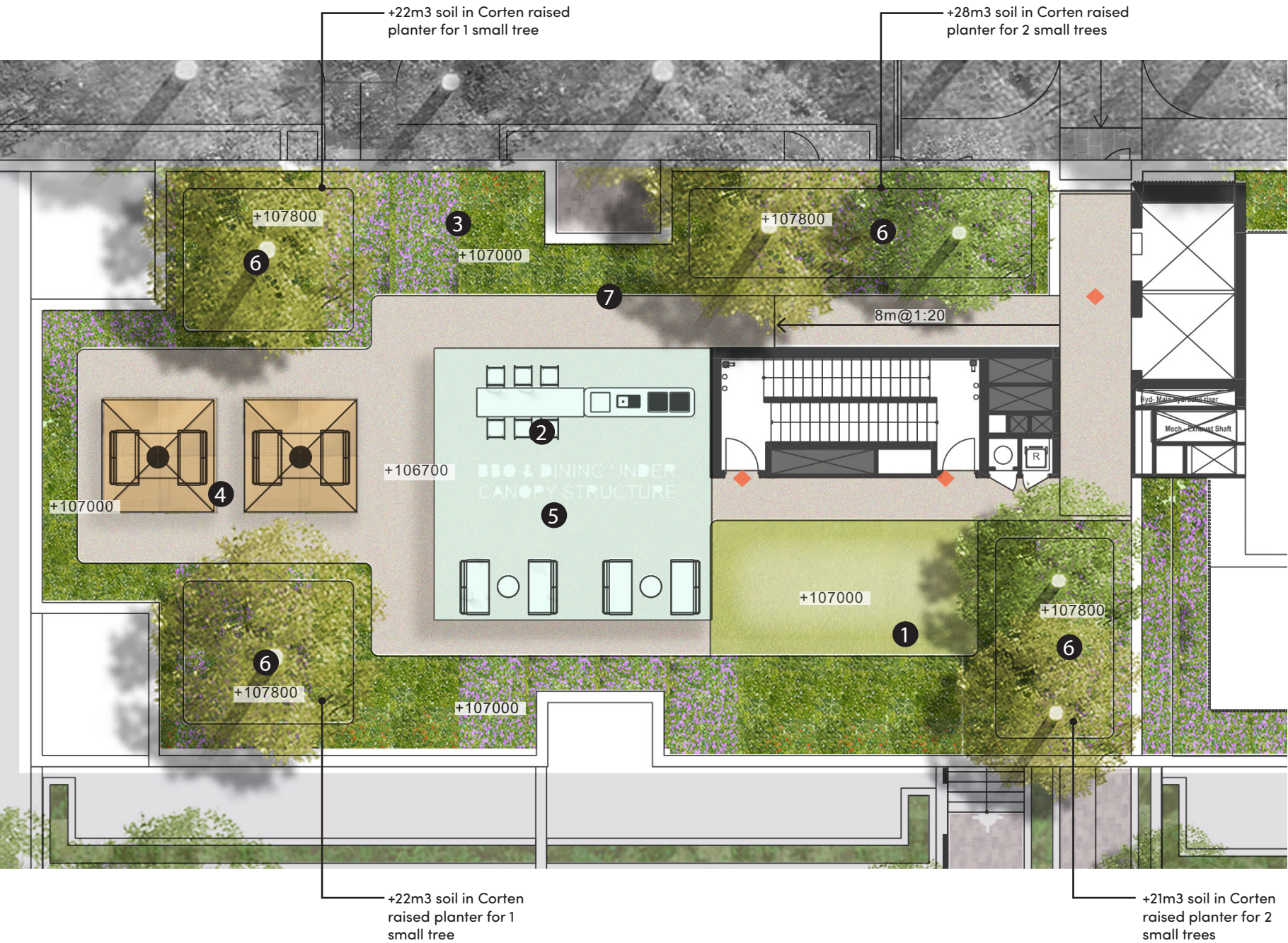
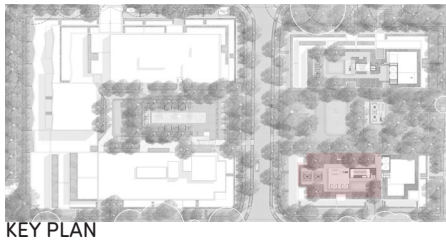


- KEY**
- 1. Open lawn (Natural or synthetic)
 - 2. Lounges with low tables
 - 3. Seating
 - 4. BBQ under awning
 - 5. 1.1m Raised planters
 - 6. 1m High safety balustrade along the inner planter wall

- LEGEND**
- Trees
 - Lawn
 - Mass planting
 - Paving
 - Entry



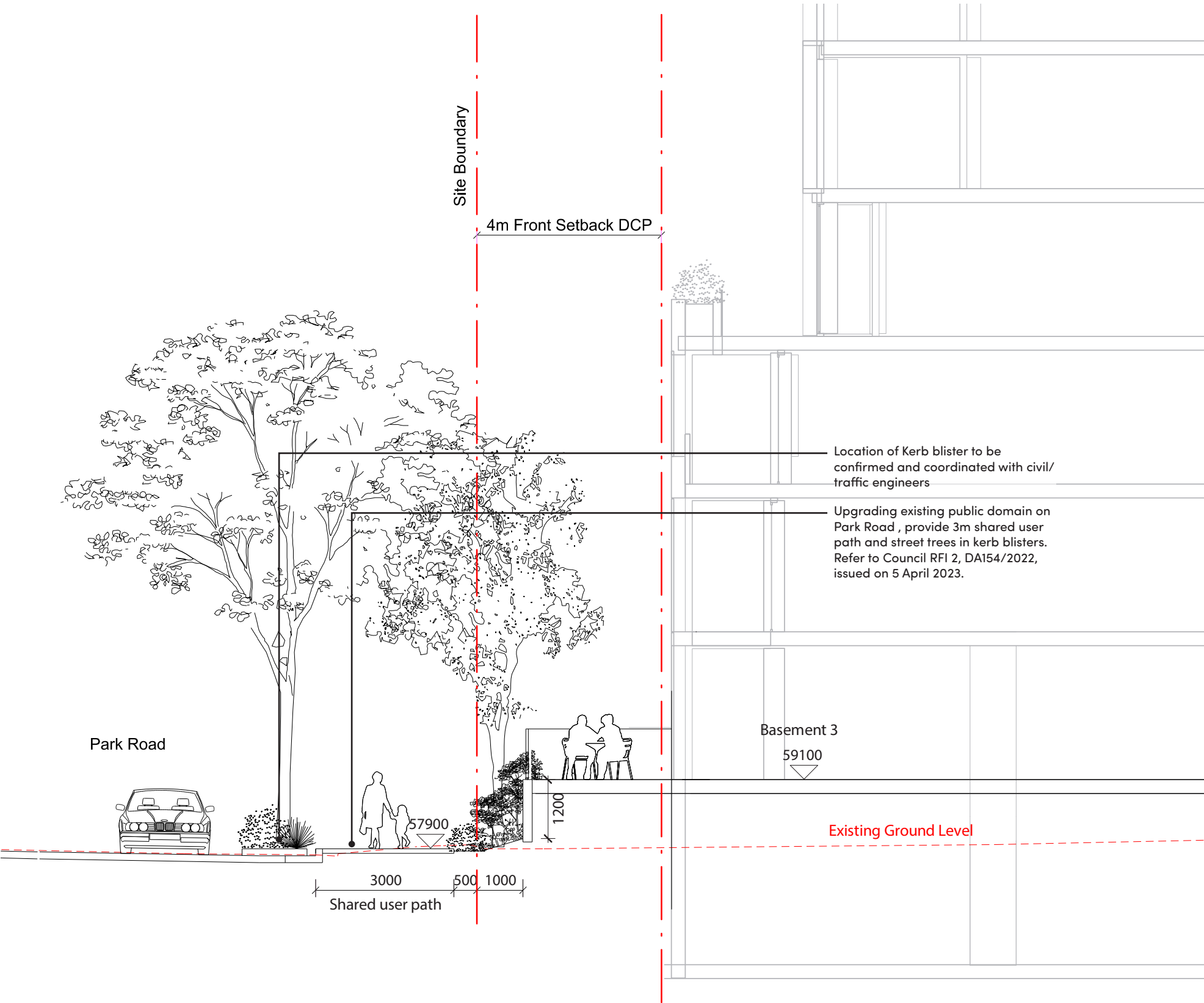
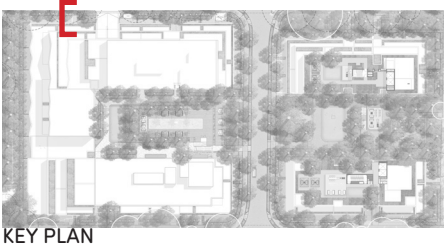
LANDSCAPE PLAN | PODIUM LANDSCAPE - LEVEL 12 BUILDING D



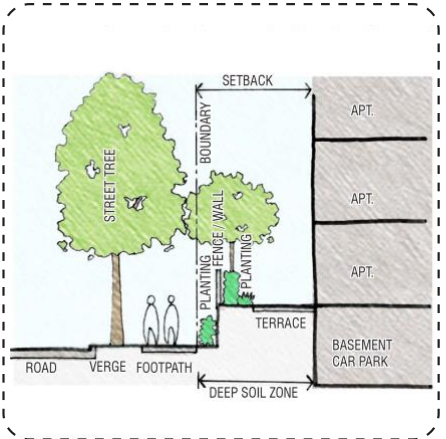
- KEY**
- 1. Open lawn (Natural or synthetic)
 - 2. Alfresco dining
 - 3. Buffer planting
 - 4. Lounges
 - 5. Semi enclosed area
 - 6. 1.1m Raised planters
 - 7. 1m High safety balustrade along the inner planter wall
- LEGEND**
- Trees
 - Lawn
 - Mass planting
 - Paving
 - Entry



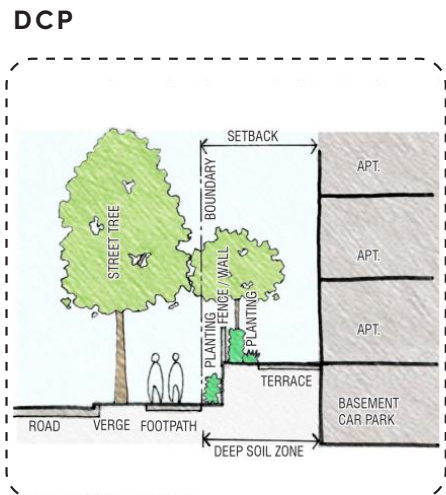
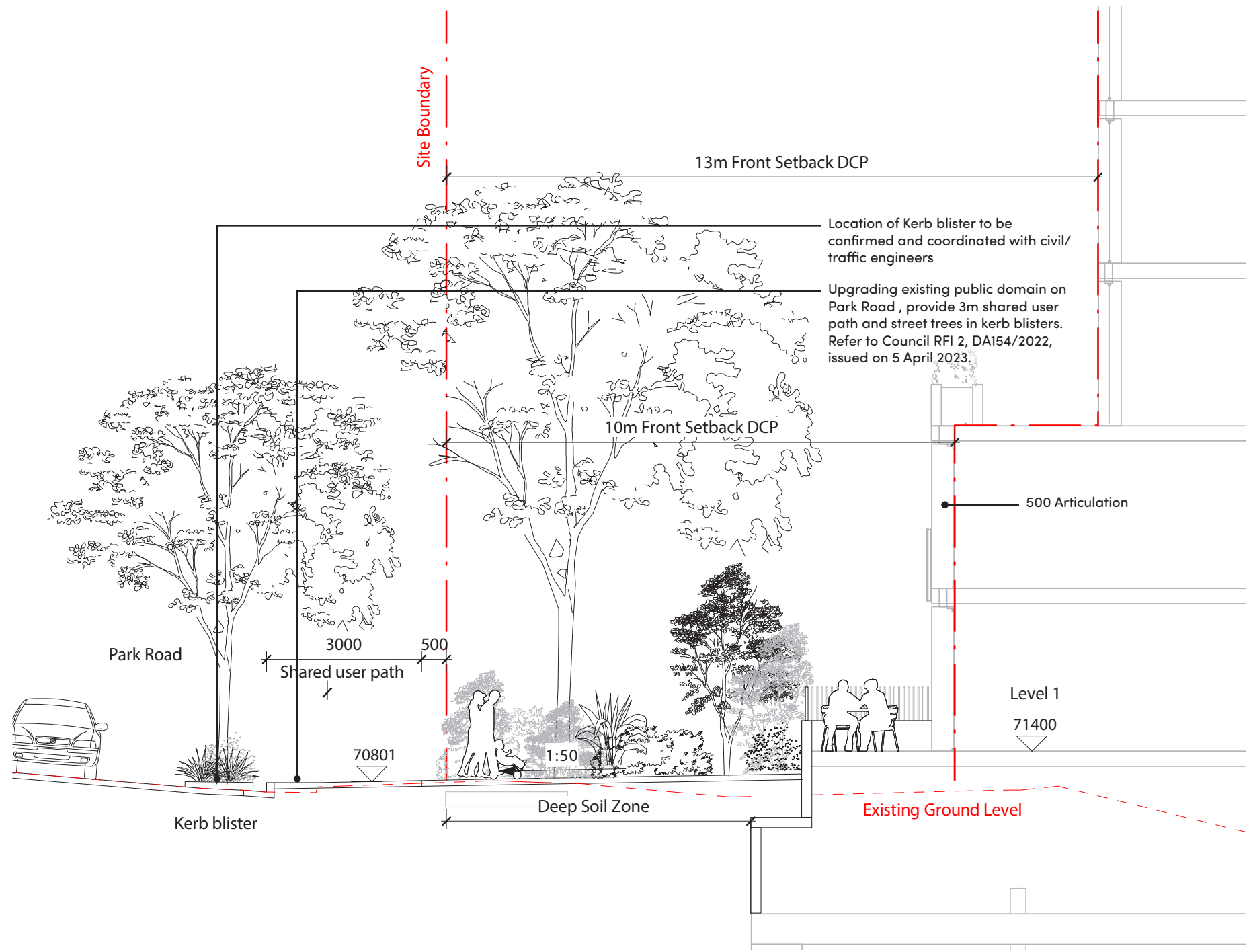
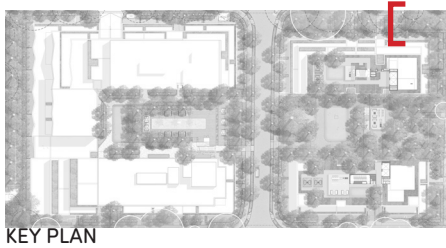
STREET FRONTAGE | PARK ROAD SECTION 01



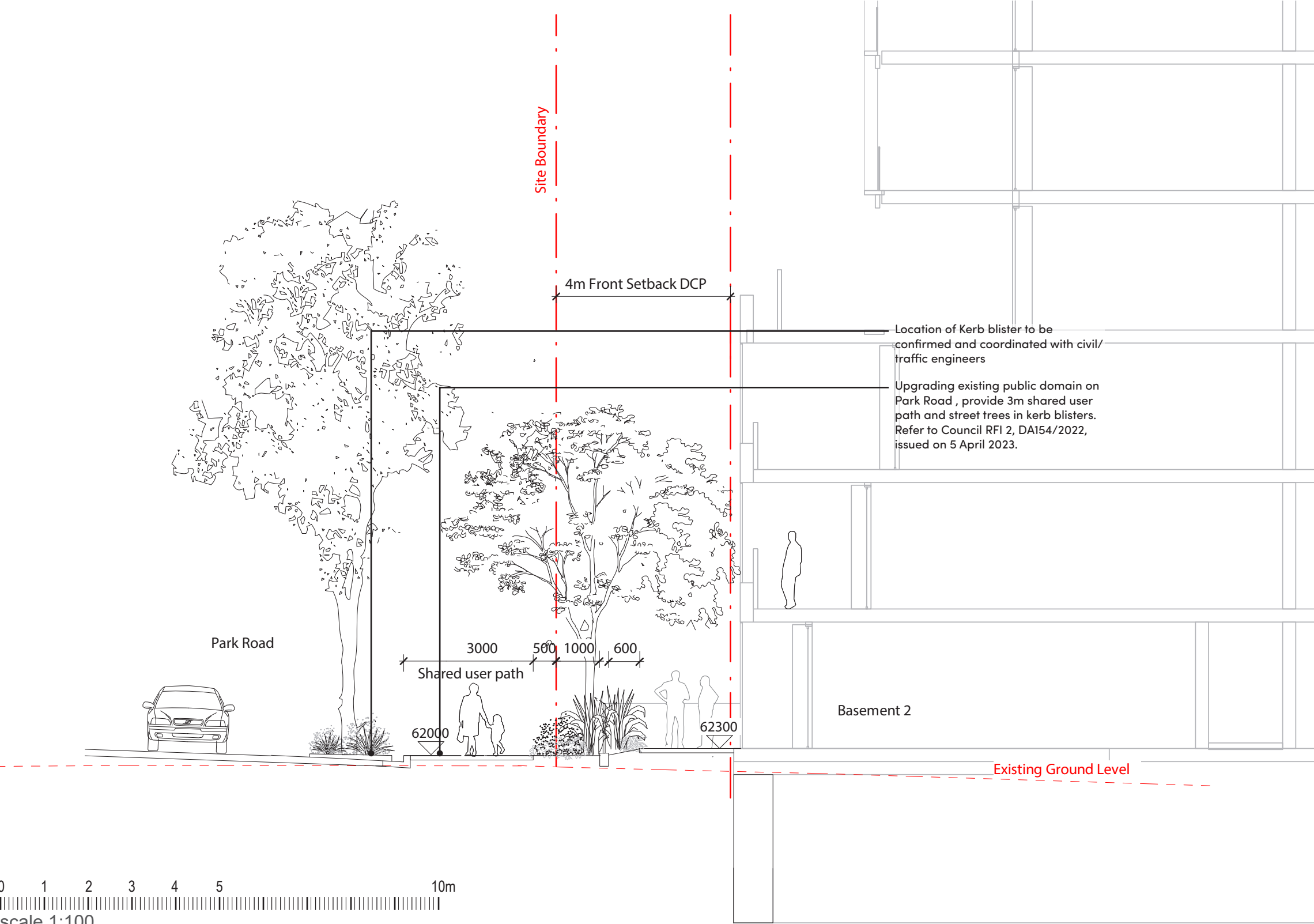
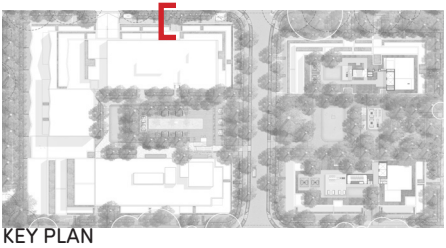
DCP



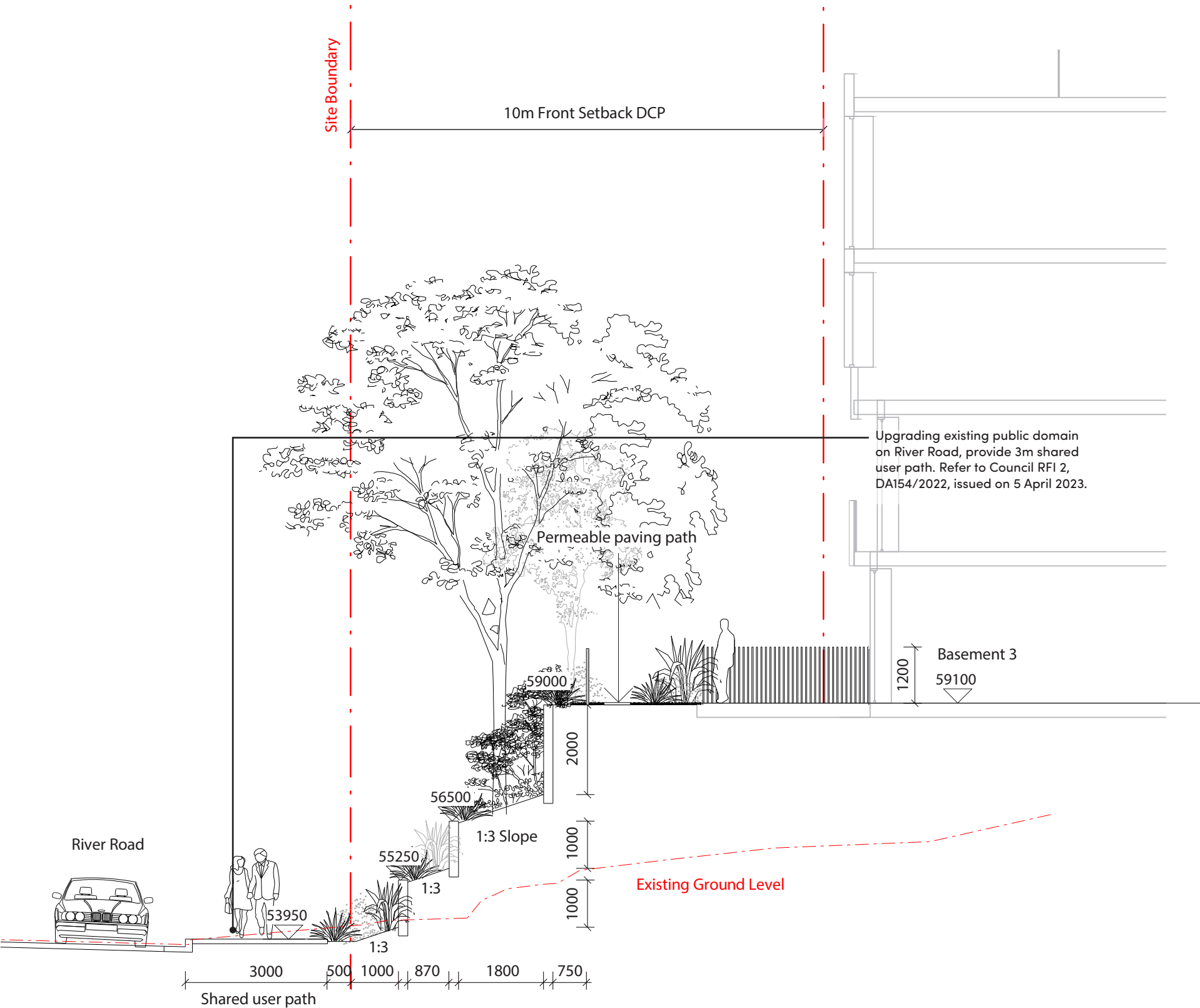
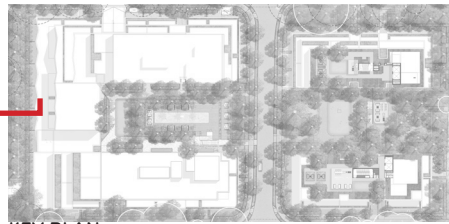
STREET FRONTAGE | PARK ROAD SECTION 02



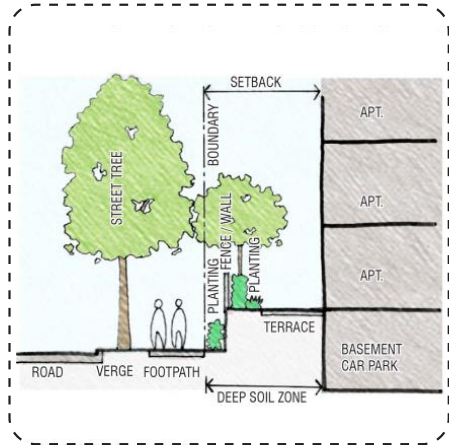
STREET FRONTAGE | PARK ROAD SECTION 03



STREET FRONTAGE | RIVER ROAD SECTION 01



DCP



Open Lobby

Basement

Existing Ground Level

4m Front Setback DCP

Site Boundary

62000

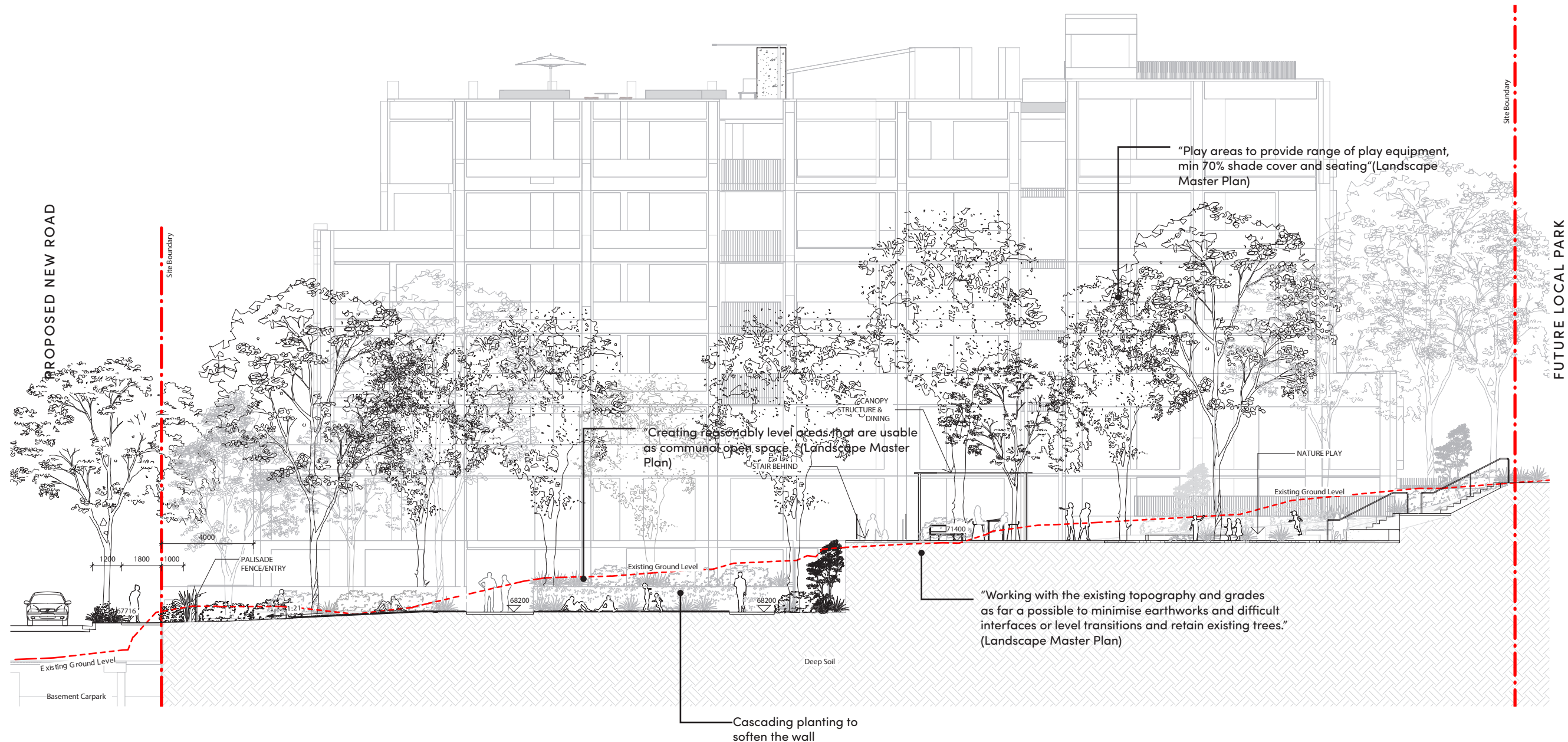
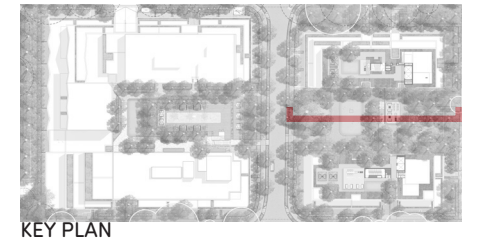
1:20

Berry Road

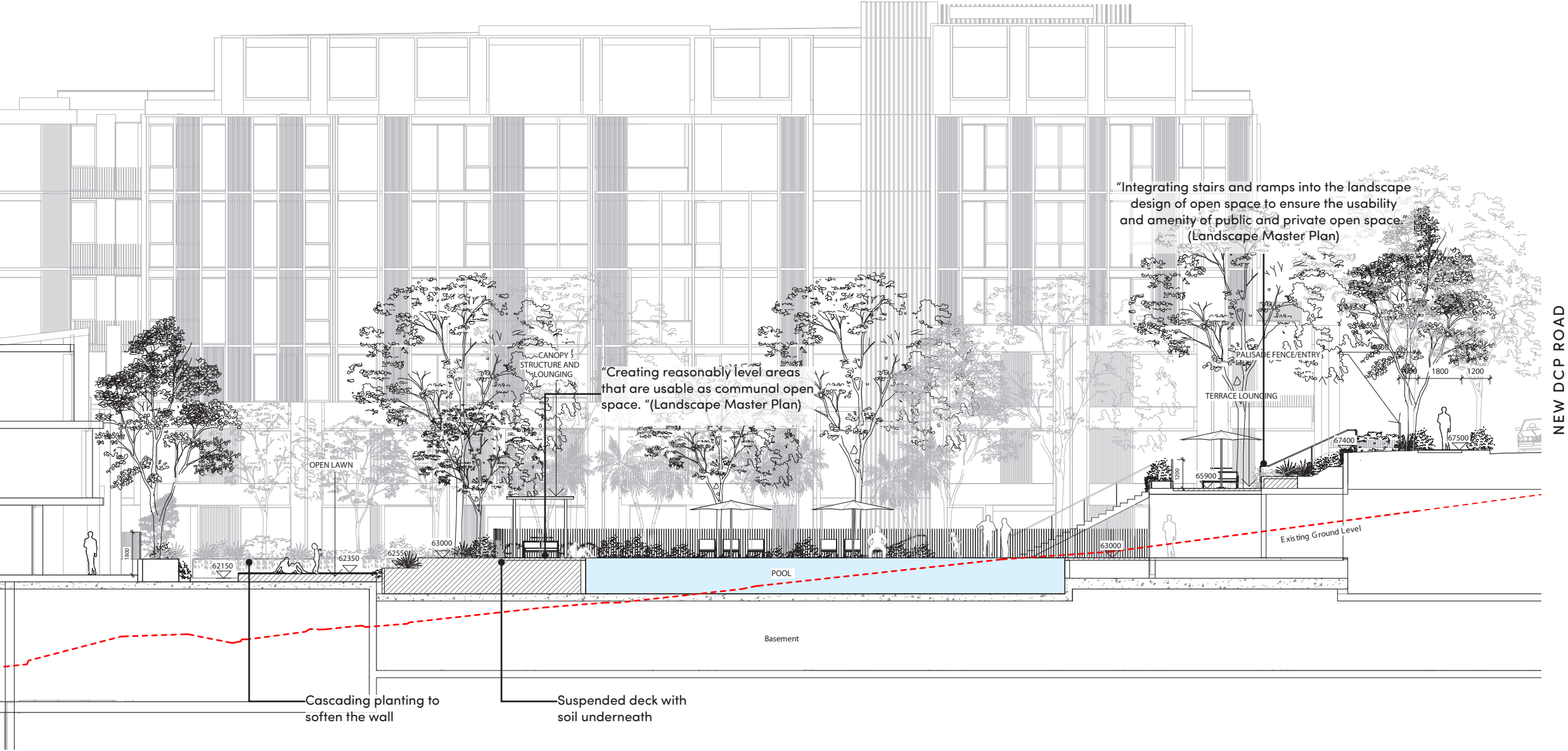
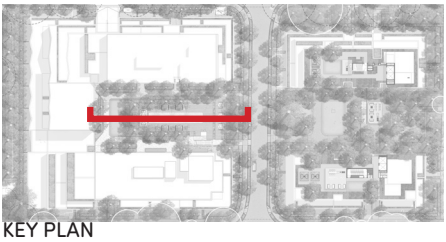
Upgrade existing public domain on Berry Road, provide 1.8m path, council verge and 1m planting within site boundary. Refer to RFI 2, DA154/2022, issued on 2023.



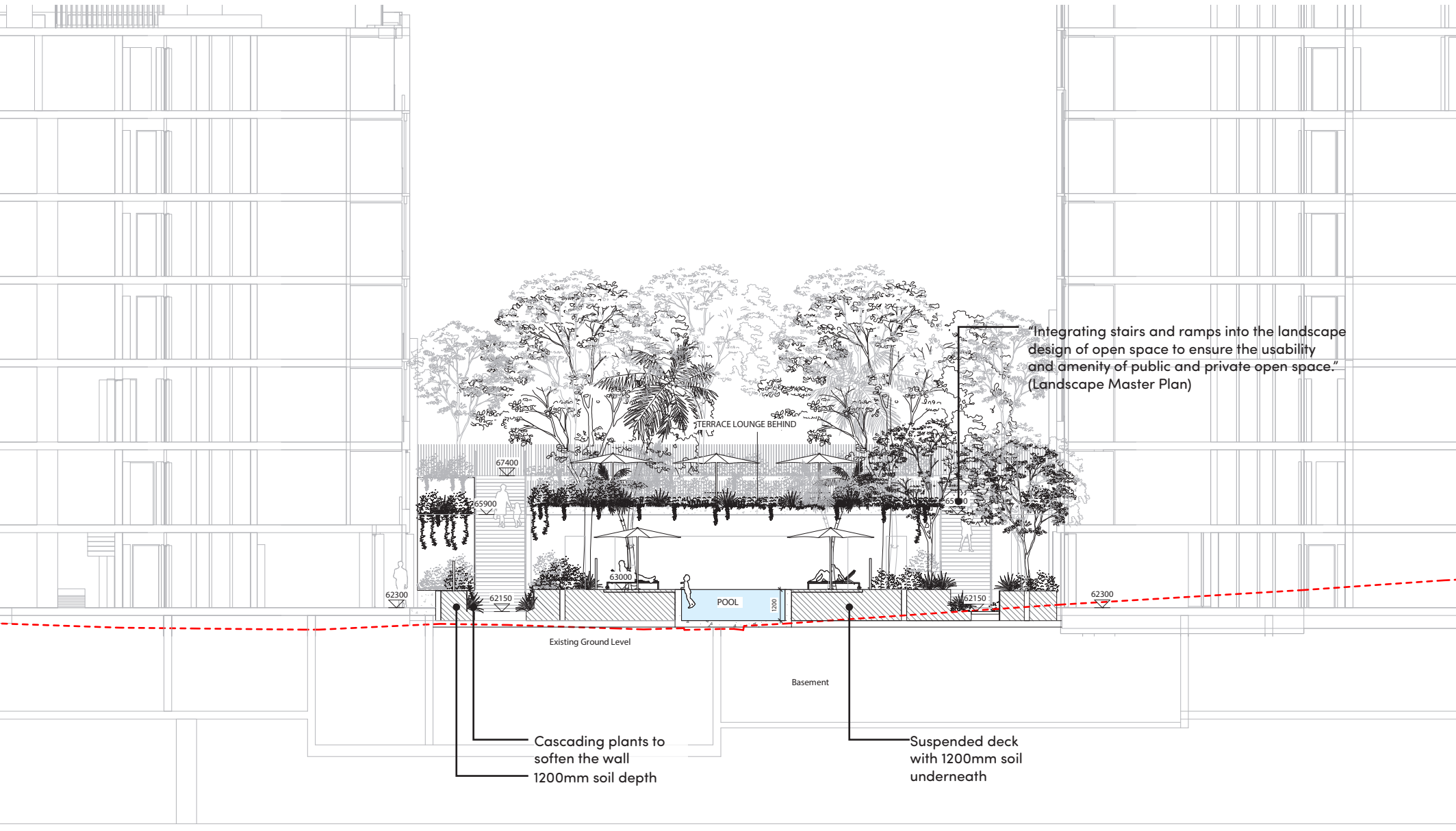
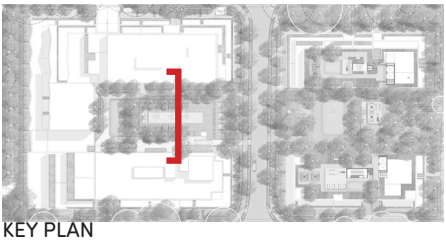
SECTION 01 | AREA 22 - GROUND FLOOR



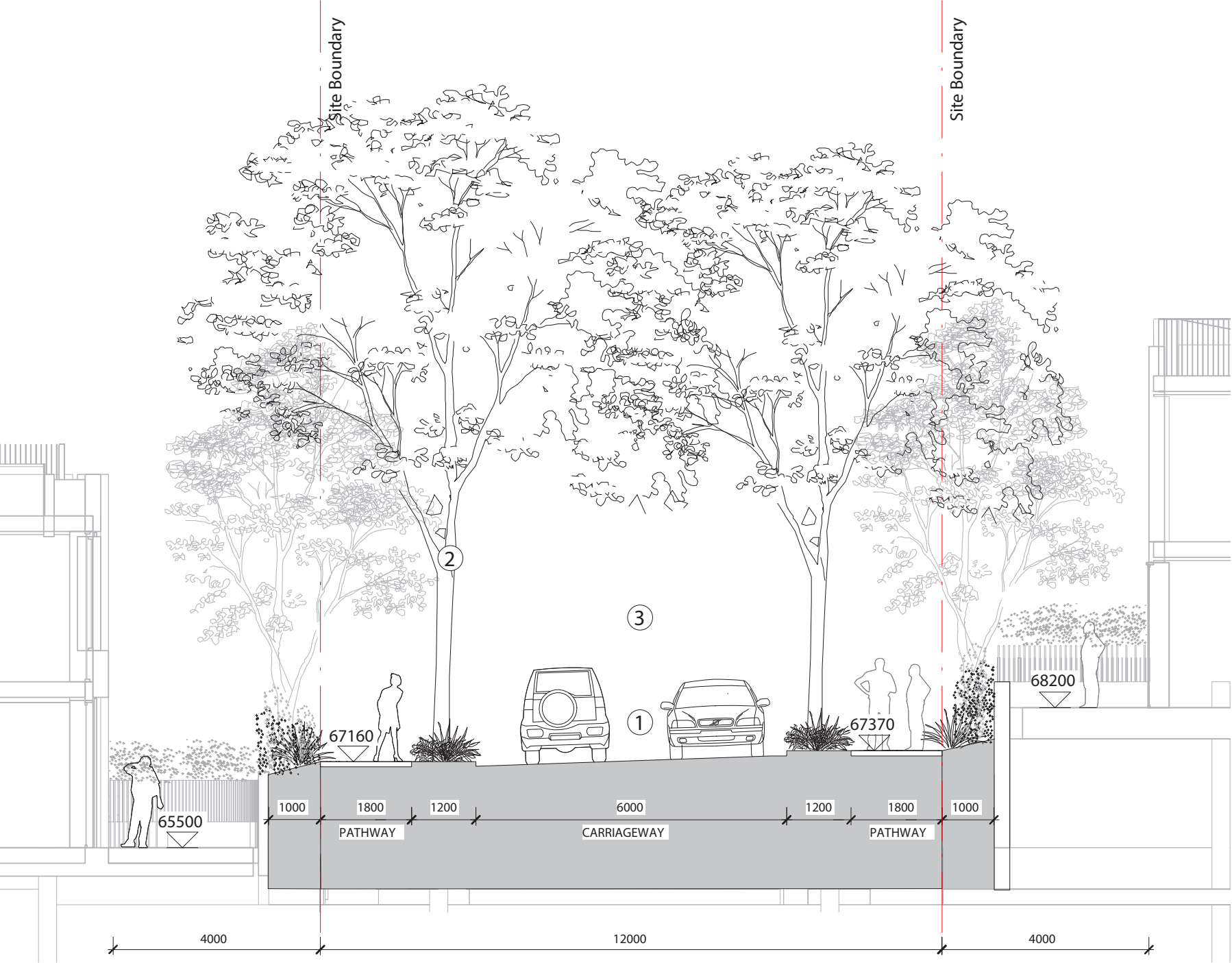
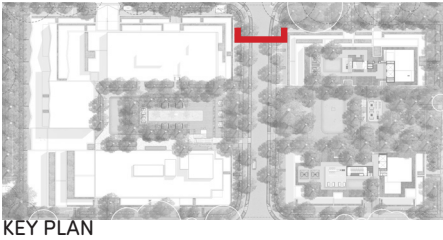
SECTION 02 | AREA 23 - GROUND FLOOR



SECTION 03 | AREA 23 - GROUND FLOOR



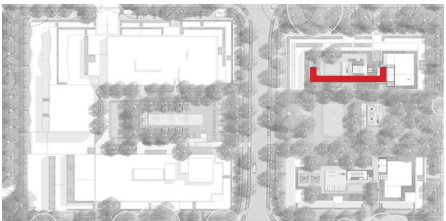
SECTION 04 | DCP PROPOSED NEW ROAD



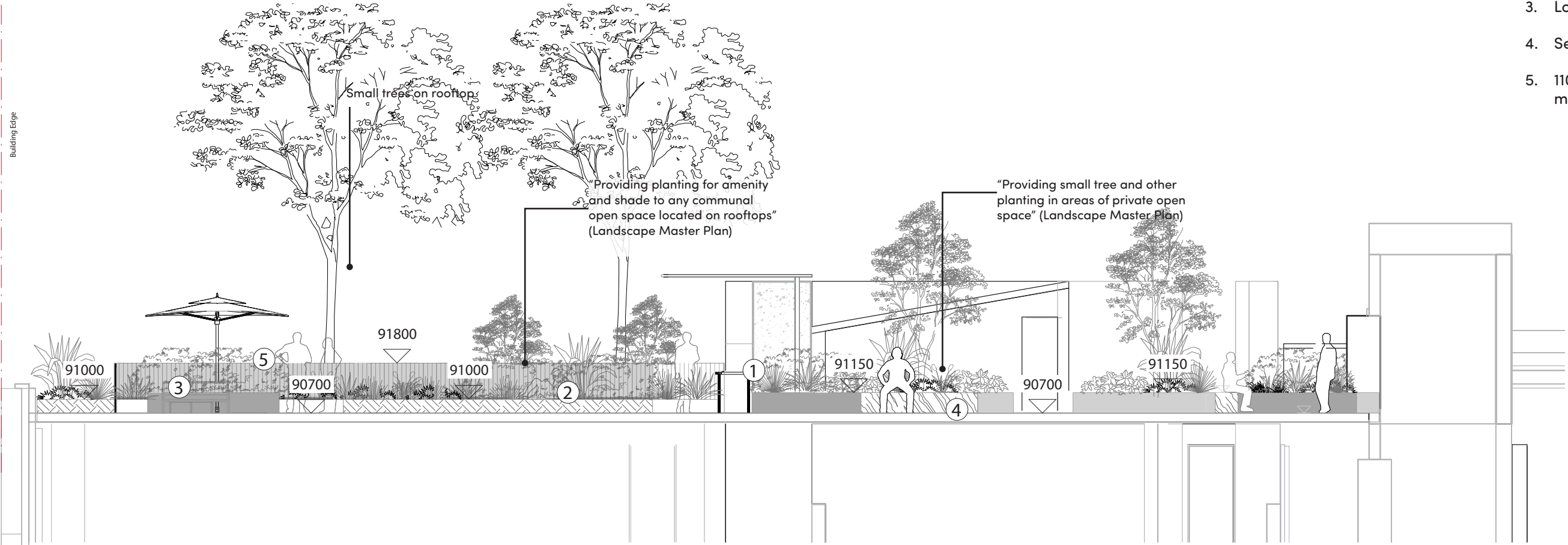
- 1. Encourage low vehicle speeds and clear visibility
- 2. Shade trees and feature planting along edges
- 3. Adequate street lighting



SECTION 05 | PODIUM LANDSCAPE - LEVEL 07



KEY PLAN



KEY

- 1. BBQ under awning
- 2. Open lawn (Natural or synthetic)
- 3. Lounges with low tables
- 4. Seating
- 5. 1100mm high Palisade metal fence



SECTION 06 | PODIUM LANDSCAPE - LEVEL 12

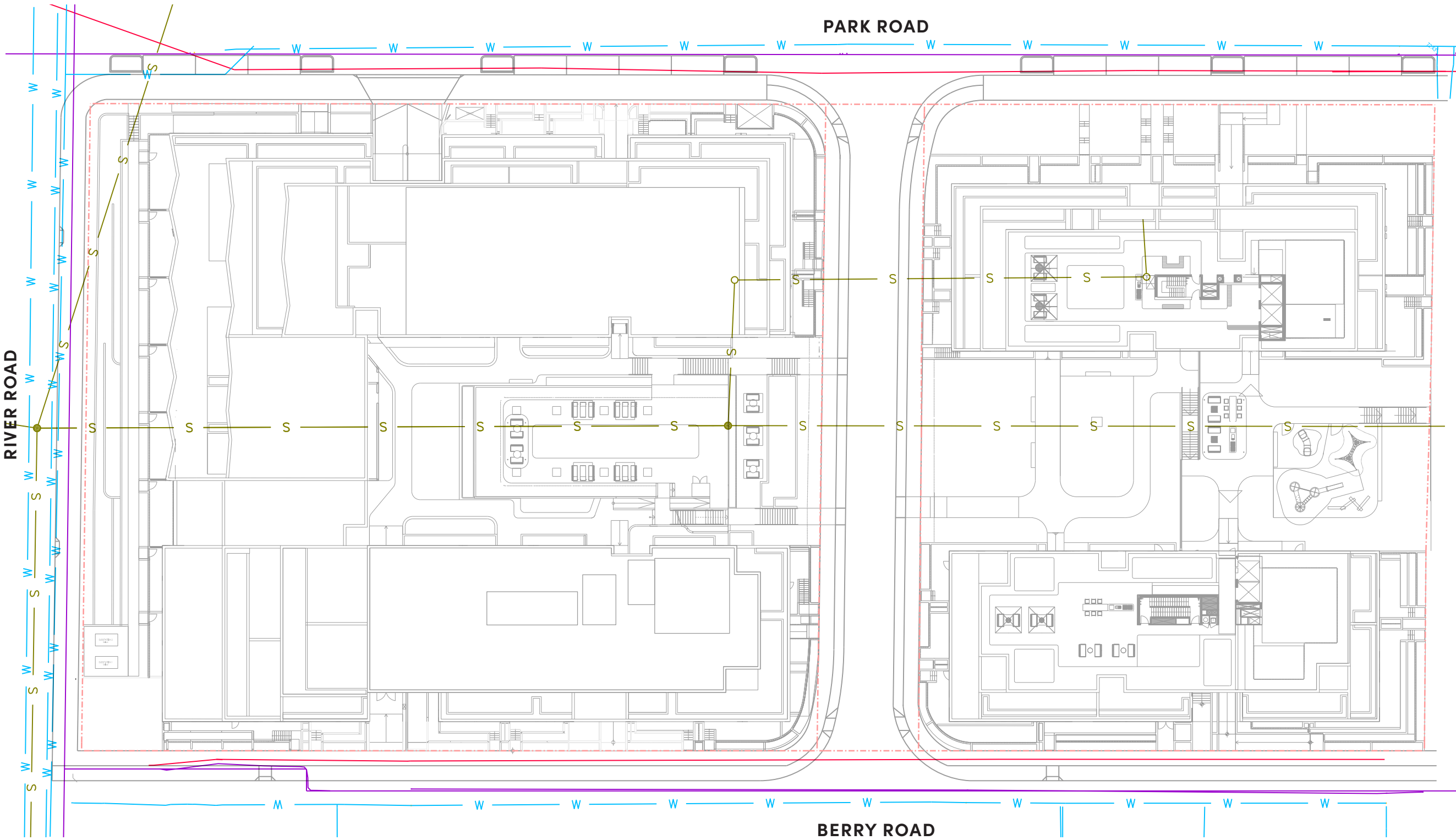


KEY

1. Open lawn (Natural or synthetic)
2. BBQ & Alfresco dining
3. Buffer planting
4. Lounges
5. 1100mm high Palisade metal fence



EXISTING SERVICES PLAN



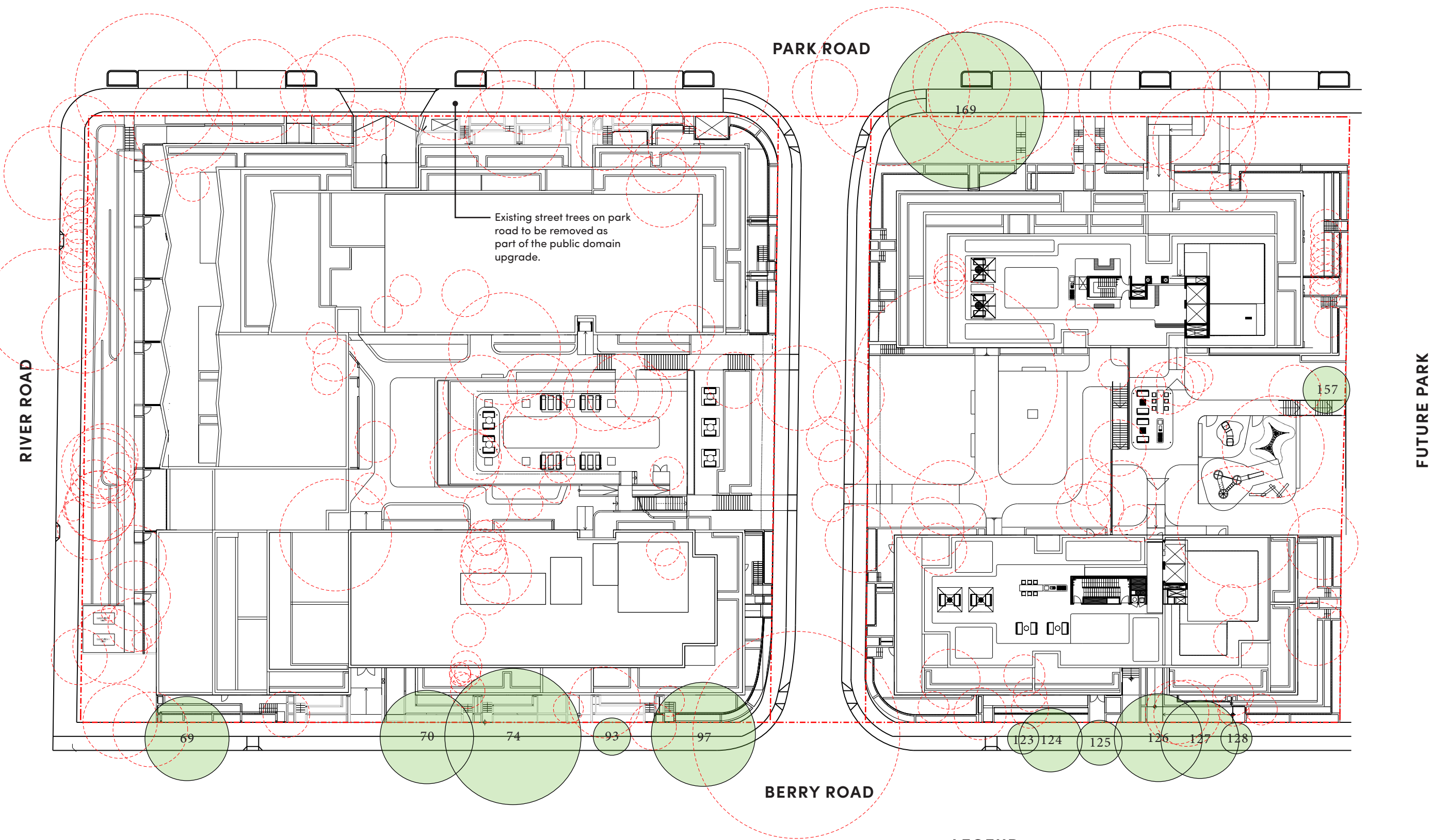
LEGEND

- S Existing Sewerage pipe
- W Existing Water Main
- Existing Gas Line
- Existing Electricity Line

Note:
Indicative diagram only,
detail services information
refer to Survey Plan provide
by LANDPARTNERS, Job No.
SY074494_003_10_6-GDA
2020



TREE MANAGEMENT PLAN



LEGEND

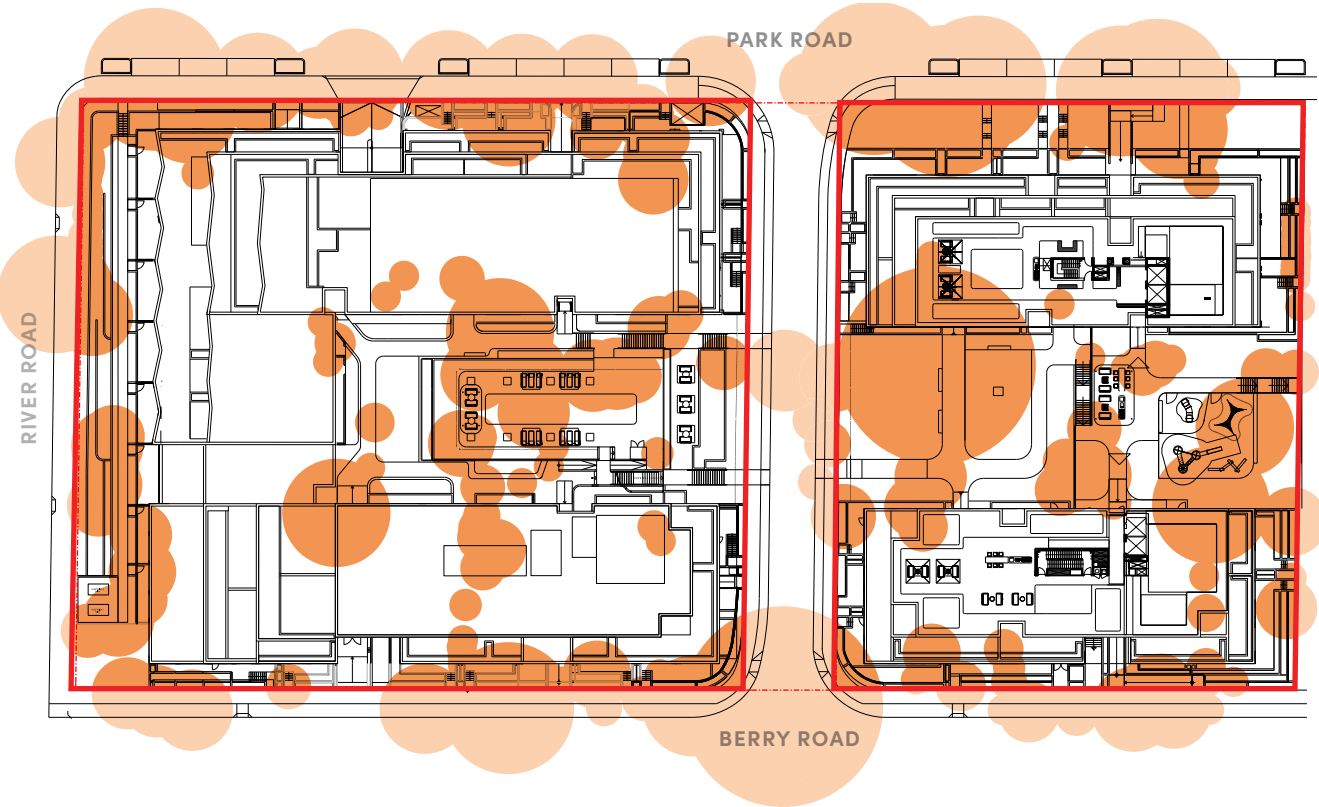
Existing Trees (13)

Trees to be removed (197)

Note : Refer to arborist report for detail information.

CANOPY COVERAGE PLAN

EXISTING CANOPY COVERAGE

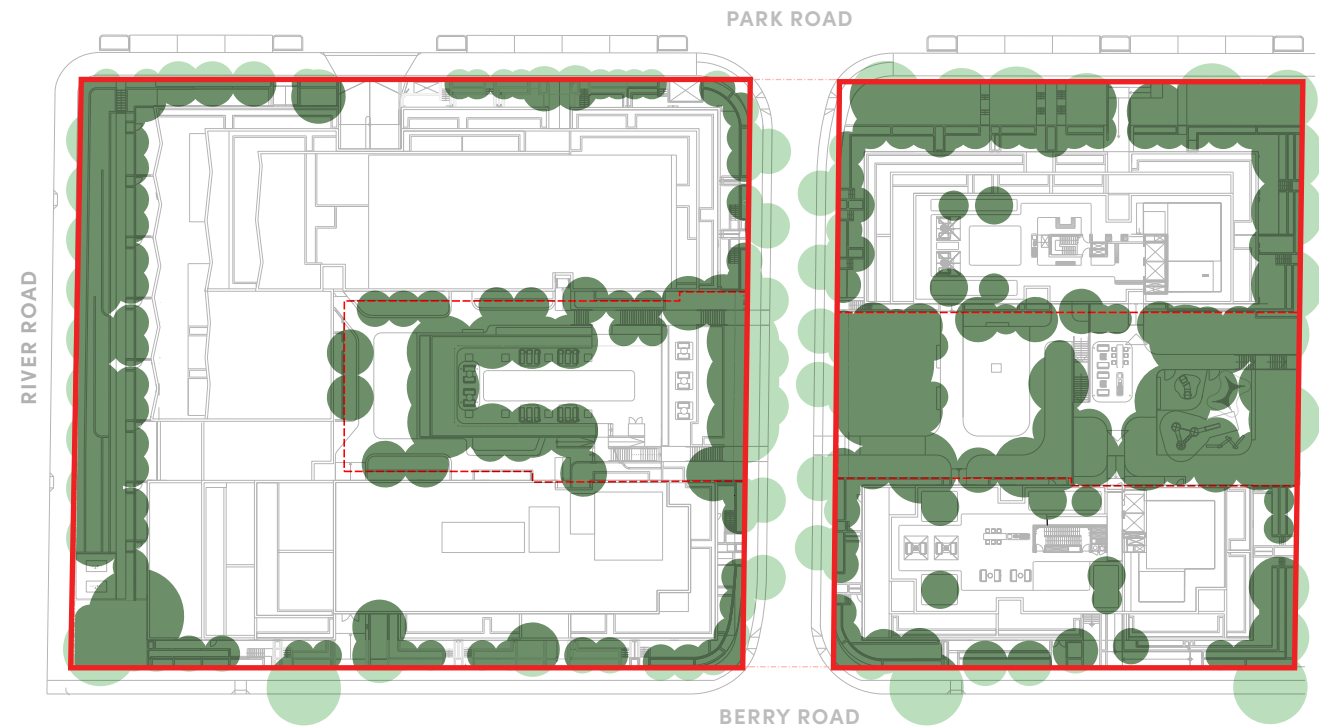


LEGEND

- Site Boundary
- Existing Canopy Cover Within Site Boundary
- Existing Canopy Cover Outside Site Boundary
- Proposed Canopy Cover Within Site Boundary
- Proposed Canopy Cover Outside Site Boundary
- Green spine area

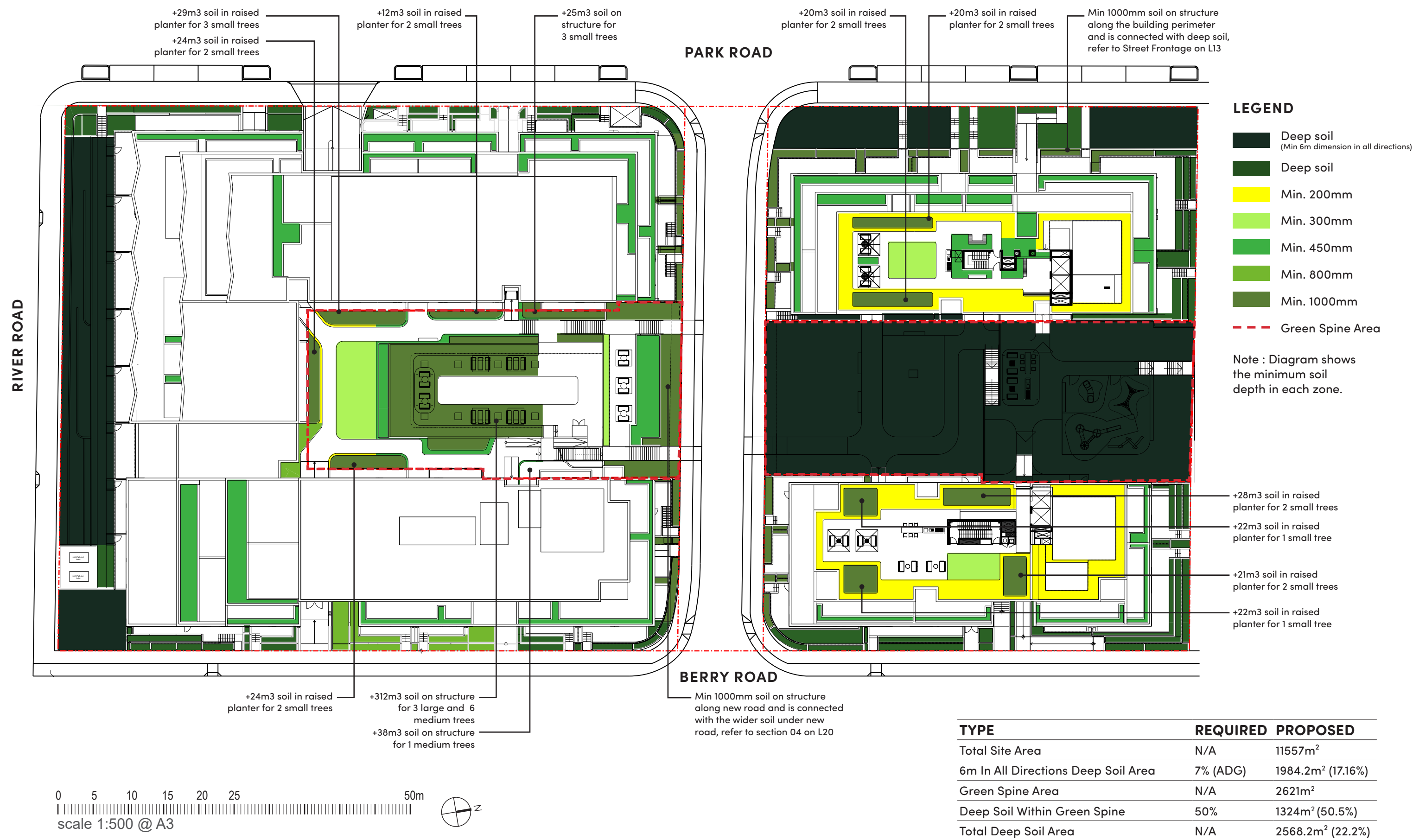
TYPE	EXISTING	PROPOSED
Total Site Area	11,557m ²	11,557m ²
Canopy Cover Area Within Site Boundary	4280.2m ²	4530.7m ²
Canopy Cover Area Outside Site Boundary	2996.3m ²	1040.7m ²
Total Canopy Cover Area	7276.6m ²	5571.4m ²
Canopy Cover Percentage Within Site Boundary	37.03%	39.2%
Total trees removed	N/A	197
Total trees proposed	N/A	248
Total trees removed along River Road	N/A	31
Total trees proposed along River Road	N/A	33

PROPOSED CANOPY COVERAGE



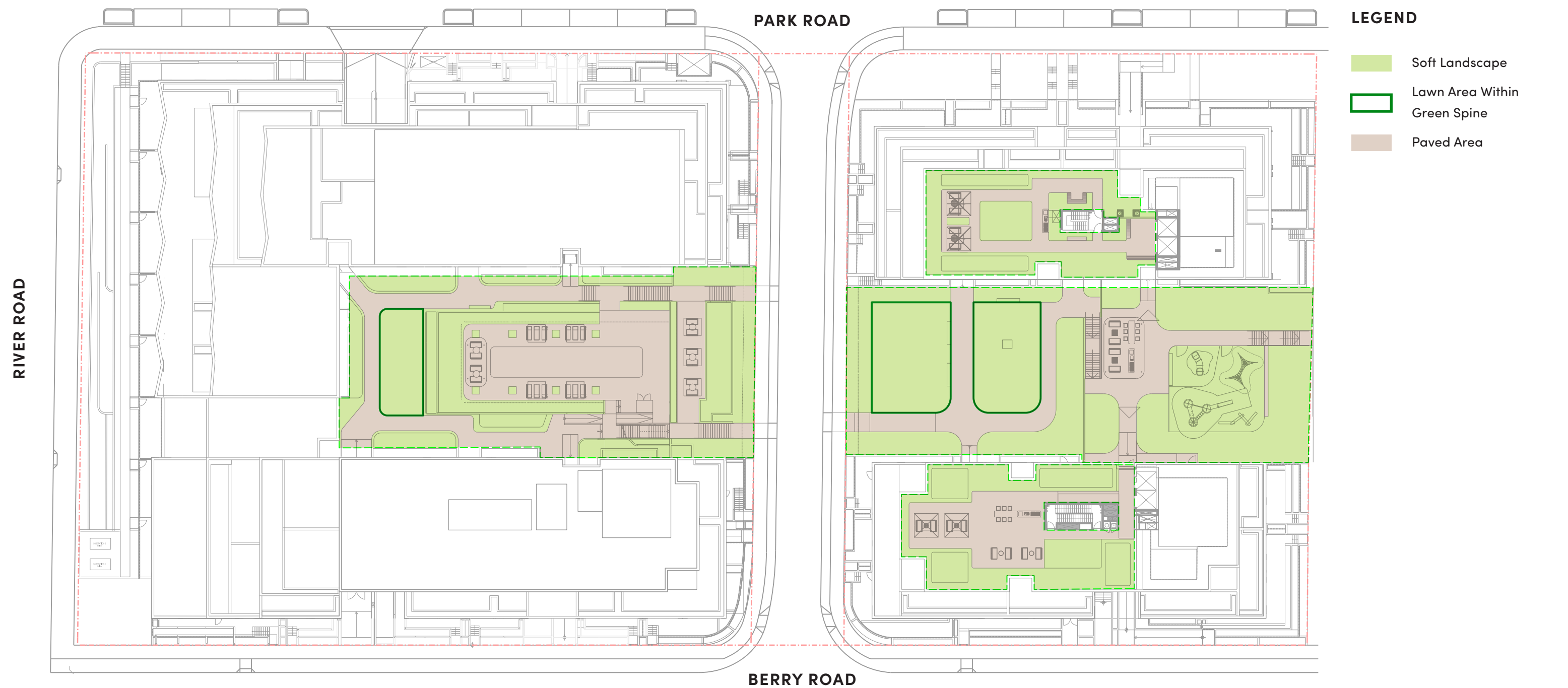
TYPE	REQUIRED	PROPOSED
Total Green Spine Area		2621.0m ²
Canopy Cover Area Within Green Spine	1310.5m ²	1790.5m ²
Canopy Cover Percentage Within Green Spine	50%	68.31%
Proposed Trees Within Green Spine	N/A	83
Large and Medium sized trees	42 (50%)	45

SOIL DEPTH PLAN



TYPE	REQUIRED	PROPOSED
Total Site Area	N/A	11557m ²
6m In All Directions Deep Soil Area	7% (ADG)	1984.2m ² (17.16%)
Green Spine Area	N/A	2621m ²
Deep Soil Within Green Spine	50%	1324m ² (50.5%)
Total Deep Soil Area	N/A	2568.2m ² (22.2%)

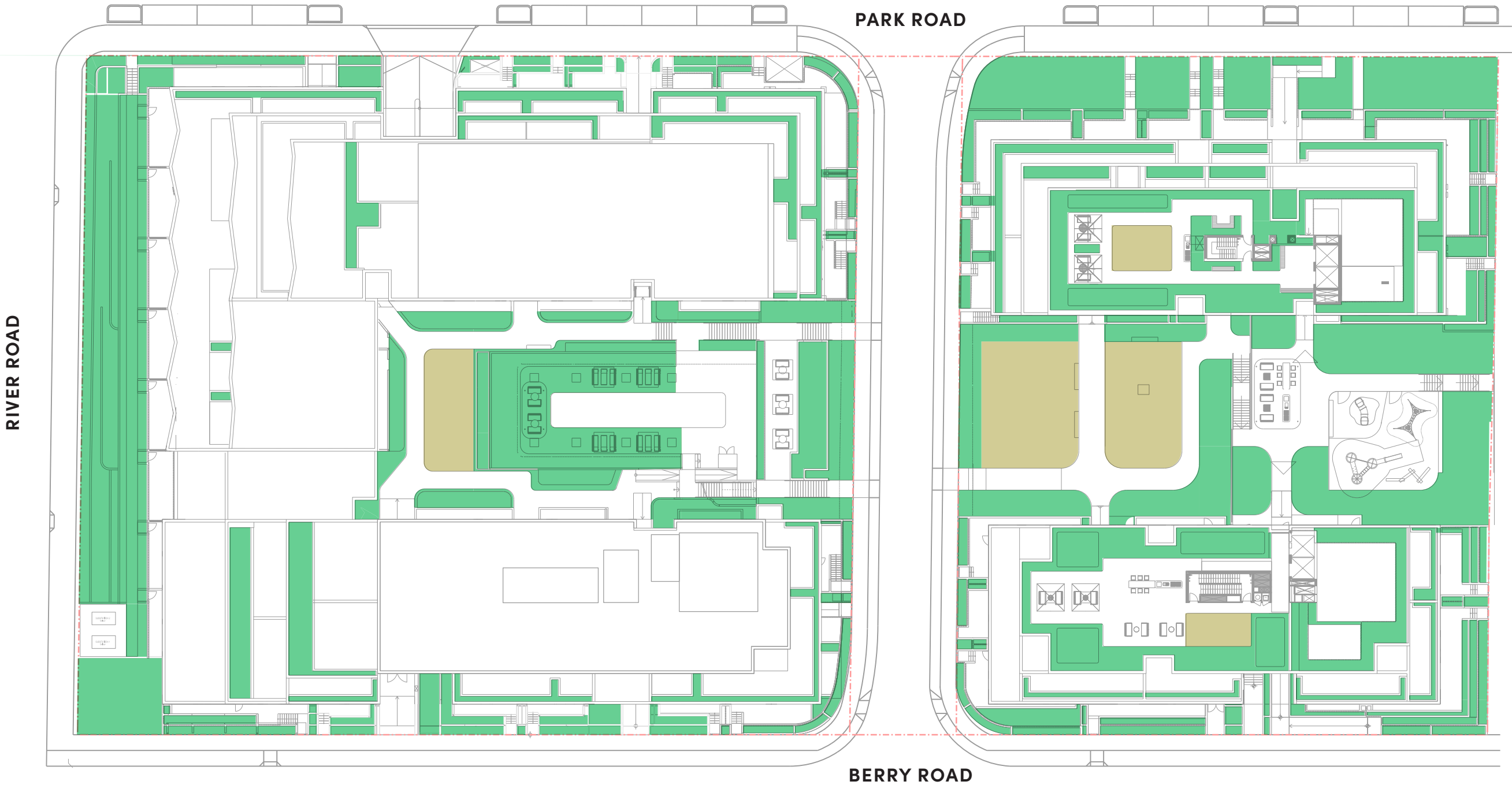
COS SOFTSCAPE CALCULATION PLAN



TYPE	REQUIRED	PROPOSED
Total Site Area	N/A	11557m ²
Total Common Open Space Area (Level 7 &12 + areas 22 & 23)	25%	3407.3m ² (30.9%)
Hardscape Area Within COS	N/A	1364m ²
Soft Landscape Area Within COS	N/A	2048.3m ²
Soft Landscape Area Percentage Within COS	60%	60.11%

TYPE	REQUIRED	PROPOSED
Total Green Spine Area	N/A	2621m ²
Soft Landscape Area Within Green Spine	N/A	1584m ²
Soft Landscape Area Percentage Within Green Spine	60%	60.4%
Total Lawn Area Within Green Spine	N/A	345.7m ²
Total Lawn Area Percentage Within Soft landscape	Max 40%	21.8%
Total Planted Area Within Green Spine	N/A	1238.3m ²
Total Planted Area Percentage Within Soft landscape	Min 60%	78.2%

IRRIGATION CONCEPT PLAN

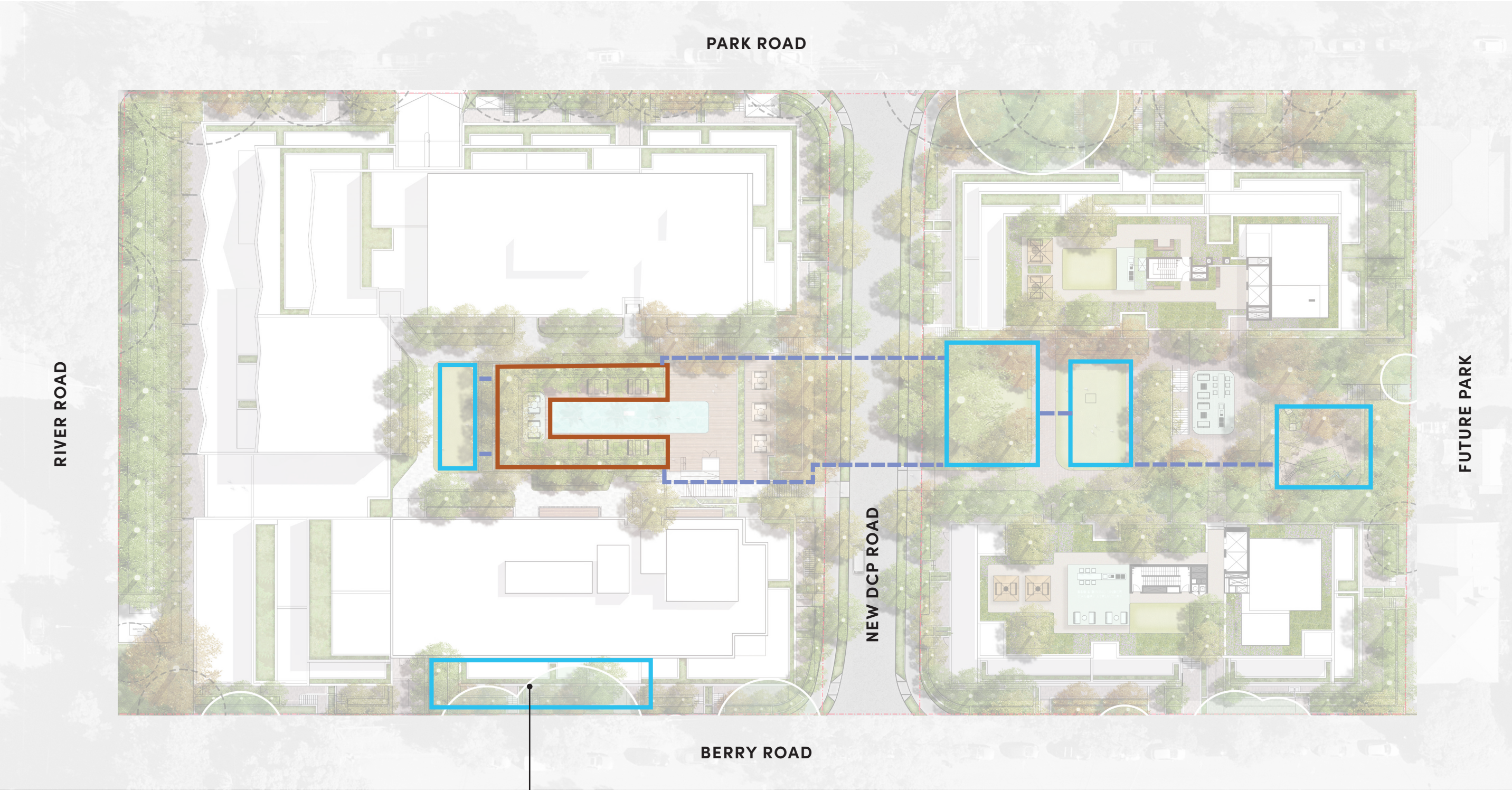


- LEGEND**
- Drip Irrigation
 - Sprinkler Irrigation

Note:
Indicative diagram only.
Irrigation design to be
development by Irrigation
consultant at detail design
stage.



WSUD STRATEGY



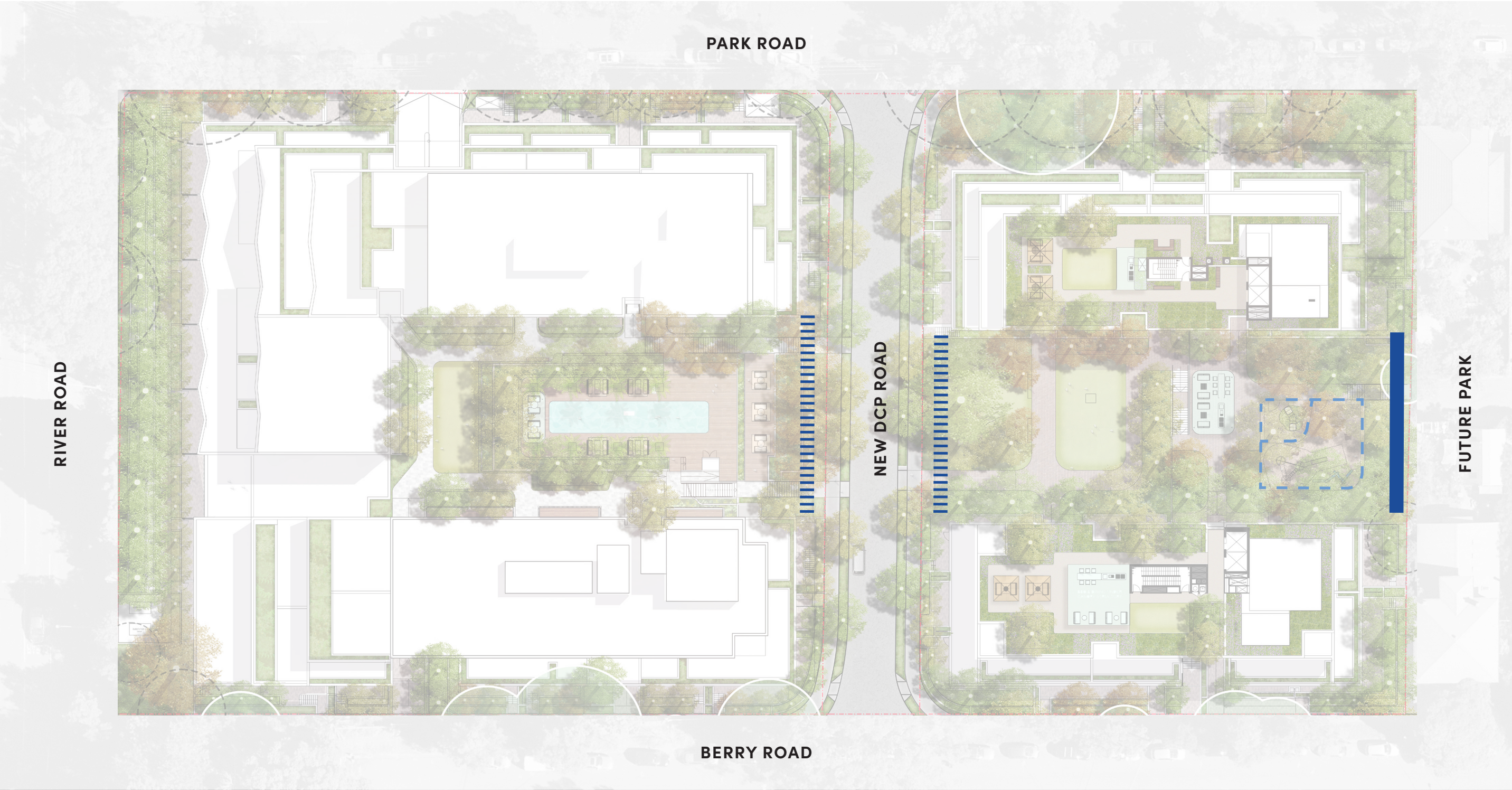
Underground OSD tank,
refer Stormwater engineer's
details and specifications

LEGEND

- Indicative location for WSUD Elements (Wicking beds, Soil Moisture Reservoirs & Detention basins)
- Stormwater system connection pipe
- Suspended deck with soil underneath



FENCING PLAN



LEGEND

-  1800mm High Stainless Steel Web Mesh
-  1200mm High Palisade steel fence
-  Playground safety and different age groups separation fence



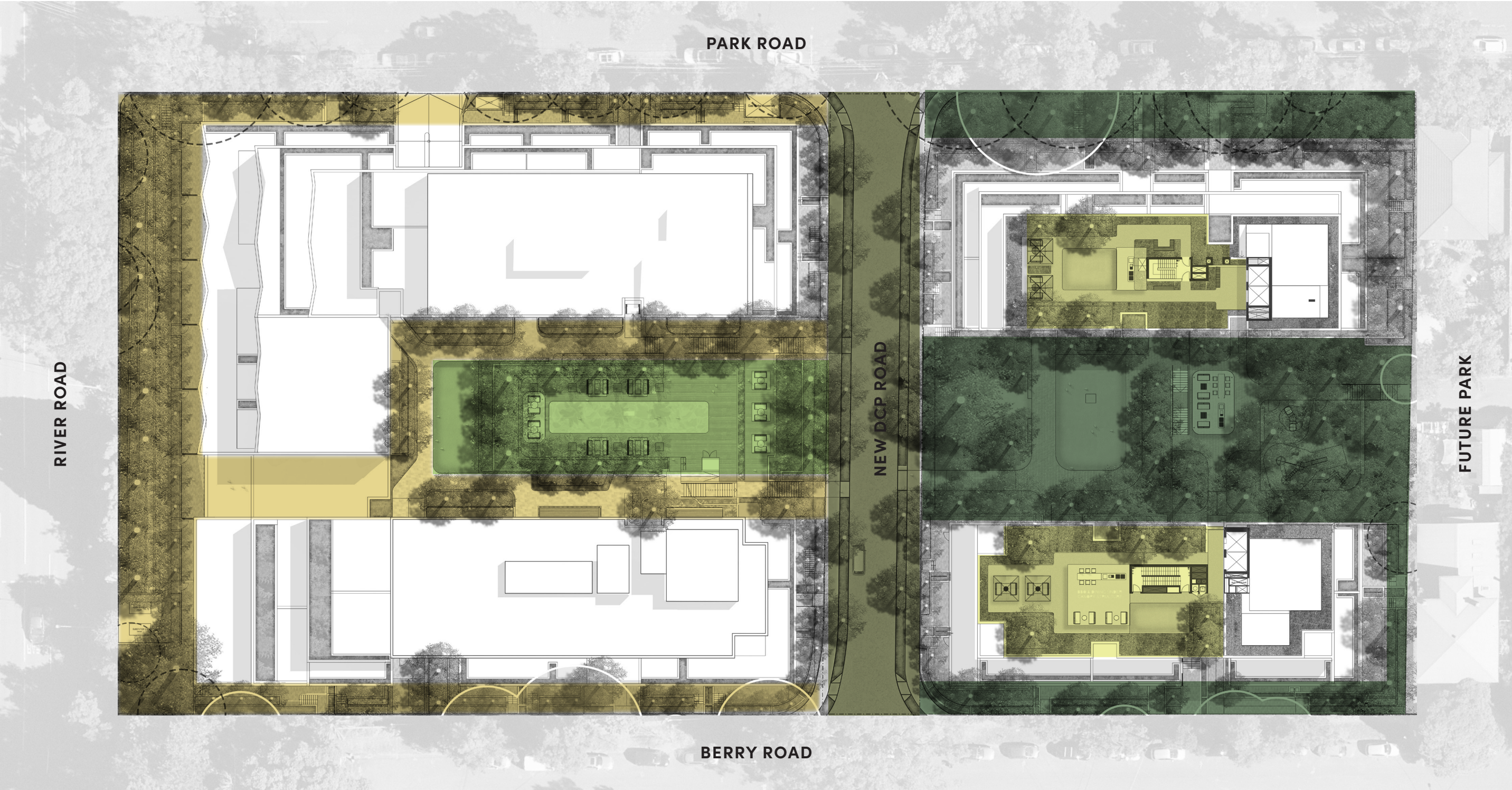
LIGHTING PLAN



LEGEND

- | | | |
|------------------------------|-------------------|--|
| Spike Light | Handrail Lighting | Spot Light |
| Downlight Mounted On Pergola | Uplight - Tree | Street Light (refer to Traffic Specialist for specification) |
| Recessed Wall Light | Pool Lighting | |

PLANTING STRATEGY



LEGEND

- | | | | |
|--|---------------------|--|--------------------|
| | Shale Landscape | | Ridgetop Landscape |
| | Sandstone Landscape | | New DCP Road |
| | Gully Rainforest | | |

PLANTING PALETTE | SHALE LANDSCAPE

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	MATURE SPREAD
TREES			
<i>Acacia parramattensis</i>	Parramatta wattle	15m	8m
<i>Angophora floribunda</i>	Rough-barked Apple	20m	10m
<i>Cyathea cooperi</i>	Tree Fern	3m	2m
<i>Eucalyptus teriticornus</i>	Forest Red Gum	20-25m	15-20m
<i>Hymenosporum flavum</i>	Native Frangipani	7m	4m
<i>Lophostemon confertus</i>	Brushbox	12m	9m
<i>Polyscias murrayi</i>	Pencil Cedar	12m	4m
<i>Syncarpia glomulifera</i>	Turpentine	20m+	12m
<i>Tristaniopsis laurina</i>	Water Gum	10m	4m
<i>Waterhousea floribunda</i>	Weeping Lilly Pilly	12m	7m
SHRUBS			
<i>Acacia longifolia</i> var. <i>longifolia</i>	Sydney Golden Wattle	8m	4m
<i>Cordyline fruticosa</i> 'Glauca'	Green Ti 'Glauca'	2m	0.5m
<i>Correa alba</i>	White Correa	1.5m	1.5m
<i>Correa reflexa</i>	Native Fuchsia	1.2m	1m
<i>Crinum pedunculatum</i>	Beach Lily	1.2m	1.2m
<i>Doryanthes excelsa</i>	Gymea Lily	4m	3m
<i>Hibbertia aspera</i>	Rough Guinea Flower	0.6m	1m
<i>Homalanthus populifolius</i>	Bleeding Heart	5m	4m
<i>Leptospermum petersonii</i>	Lemon Tea Tree	5m	2m
<i>Leucopogon juniperinus</i>	Prickly Beard-heath	1m	1m
<i>Pimelea linifolia</i>	Slender Rice Flower	1.2m	1m
<i>Pittosporum revolutum</i>	Wild Yellow Jasmine	3m	2m
<i>Westringia fruticosa</i>	Coastal Rosemary	0.3m	0.5m
GRASSES, GROUNDCOVERS, FERNS & SCRAMBLERS			
<i>Clematis aristata</i>	Old Man's Beard	0.5m	6m
<i>Dianella caerulea</i>	Blue Flax-lily	0.8m	1m
<i>Dichondra repens</i>	Kidney Weed	0.1m	0.5m
<i>Doodia aspera</i>	Prickly Rasp Fern	0.4m	0.4m
<i>Entolasia stricta</i>	Wiry Panic	0.8m	1.5m
<i>Gahnia aspera</i>	Rough Saw-sedge	1m	1m
<i>Glycine clandestina</i>	Twining glycine	1.5m	1m
<i>Hardenbergia violacea</i>	False Sarsaparilla	4m	2m
<i>Isolepis nodosa</i>	Knobby Club Rush	1m	1m
<i>Kennedia rubicunda</i>	Dusky Coral Pea	5m	1m
<i>Lepidosperma laterale</i>	Variable Sword-sedge	0.2m	0.3m
<i>Lomandra tanika</i>	Spiny-headed Mat-rush	0.9m	0.8m
<i>Pandorea pandorana</i>	Wonga Wonga Vine	7m	5m
<i>Themeda australis</i>	Kangaroo Grass	1m	0.8m



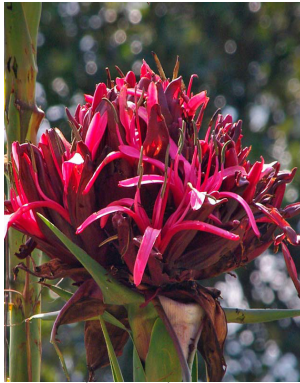
Syncarpia glomulifera



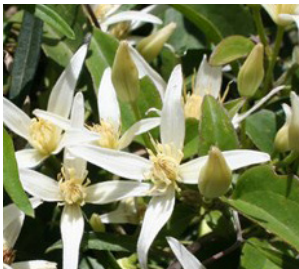
Tristaniopsis laurina



Angophora floribunda



Doryanthes excelsa



Clematis aristata



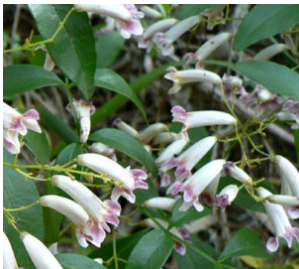
Glycine clandestina



Hardenbergia violacea



Kennedia rubicunda



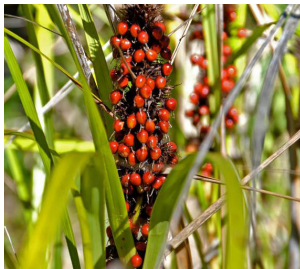
Pandorea pandorana



Dianella caerulea



Dichondra repens



Gahnia aspera



Pimelea linifolia



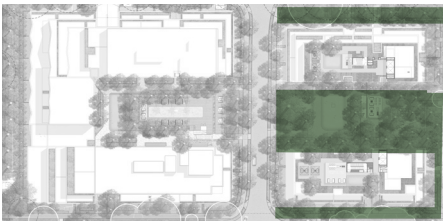
Westringia fruticosa



Isolepis nodosa



Pittosporum revolutum



KEY PLAN

PLANTING PALETTE | SANDSTONE LANDSCAPE

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	MATURE SPREAD
TREES			
<i>Alphitonia Excelsa</i>	Red Ash	10m	6m
<i>Angophora floribunda</i>	Rough-barked Apple	20m	10m
<i>Brachychiton acerifolius</i>	Illawara Flame Tree	14m	9m
<i>Elaeocarpus eumundi</i>	Eumundi Quandong	9m	4m
<i>Elaeocarpus reticulatus</i>	Blueberry Ash	9m	4m
<i>Eucalyptus paniculata</i>	Grey Ironbark	20m+	8m
<i>Eucalyptus saligna</i>	Sydney Blue Gum	20m+	25m
SHRUBS			
<i>Acacia implexa</i>	Hickory Wattle	8m	7m
<i>Acmena smithii</i>	Lilly Pilly	5m	3m
<i>Bursaria spinosa</i>	Native Blackthorn	4m	3m
<i>Callistemon salignus</i>	Willow Bottlebrush	10m	5m
<i>Correa alba</i>	White Correa	1.5m	1.5m
<i>Exocarpos cupressiformis</i>	Cherry Ballart	8m	6m
<i>Hibbertia aspera</i>	Rough Guinea Flower	0.6m	1m
<i>Raphiolepis 'Oriental Pearl'</i>	Oriental Pearl	0.75m	0.75m
GRASSES, GROUNDCOVERS, FERNS & SCRAMBLERS			
<i>Asplenium nidus</i>	Birds Nest Fern	1m	1.5m
<i>Blechnum cartilagineum</i>	Gristle Fern	1.5m	1.5m
<i>Blechnum 'Silver Lady'</i>	Silver lady fern	1.2m	1m
<i>Calochlaena dubia</i>	Rainbow Fern	2m	1.5m
<i>Casuarina glauca 'Cousin It'</i>	Cousin it	0.3m	2m
<i>Dianella caerulea</i>	Blue Flax-lily	0.8m	1m
<i>Dianella longifolia</i>	Blueberry Lily	1m	1m
<i>Dichondra repens</i>	Kidney Weed	0.1m	0.5m
<i>Doodia aspera</i>	Prickly Rasp Fern	0.4m	0.4m
<i>Geitonoplesium cymosum</i>	Scrambling Lily	0.5m	8m
<i>Hibbertia scandens</i>	Guinea Flower	1m	4m
<i>Lomandra tanika</i>	Spiny-headed Mat-rush	0.9m	0.8m
<i>Myoporum parvifolium</i>	Dwarf Native Myrtle	0.3m	3m
<i>Passiflora herbertiana subsp.</i>	Native Passionfruit	0.12m	2m
<i>Themeda australis</i>	Kangaroo Grass	1m	0.8m
<i>Viola hederacea</i>	Native Violet	0.15m	1m
<i>Wahlenbergia gracilis</i>	Sprawling Bluebell	0.2m	0.5m
<i>Westringia fruticosa 'Mundi'</i>	Coastal Rosemary	0.3m	0.5m



Brachychiton acerifolius



Elaeocarpus reticulatus



Eucalyptus saligna



Eucalyptus paniculata



Callistemon salignus



Correa alba



Kennedia rubicunda



Acacia implexa



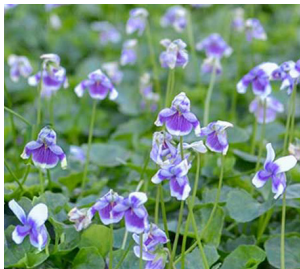
Asplenium nidus



Doodia aspera



Wahlenbergia gracilis



Viola hederacea



Themeda australis



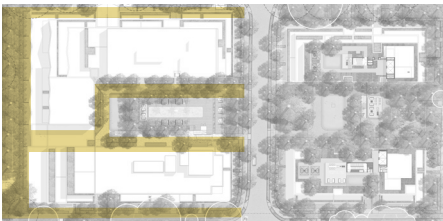
Dianella longifolia



Lomandra tanika



Calochlaena dubia



KEY PLAN

PLANTING PALETTE | GULLY RAINFOREST

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	MATURE SPREAD
TREES			
<i>Brachychiton acerifolius</i>	Illawara Flame Tree	10m	9m
<i>Hymenosporum flavum</i>	Native Frangipani	6m	4m
<i>Livistona australis</i>	Cabbage Tree Palm	10m	4m
<i>Waterhousea floribunda</i>	Weeping Lilly Pilly	10m	5m
SHRUBS			
<i>Cordyline stricta</i>	Slender Palm Lily	1m	0.5m
GRASSES, GROUNDCOVERS, FERNS & SCRAMBLERS			
<i>Asplenium nidus</i>	Birds Nest Fern	1m	1.5m
<i>Alpinia caerulea</i>	Native Ginger	2.5m	2m
<i>Alpinia caerulea</i> 'Atherton'	Red Backed Ginger	2m	1.5m
<i>Crinum pedunculatum</i>	Swamp Lily	2m	2m
<i>Doodia aspera</i>	Prickly Rasp Fern	0.4m	0.4m
<i>Helmholtzia glaberrima</i>	Stream Lily	2m	2m
<i>Lomandra spicata</i>	Yellow Flowered Mat Rush	0.8m	0.8m
<i>Molineria capitulata</i>	Palm Grass	1m	0.5m
<i>Peperomia enervis</i>	Peperomia	0.3m	0.5m
<i>Viola hederacea</i>	Native Violet	0.15m	1m



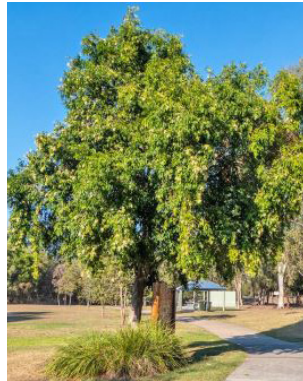
Brachychiton acerifolius



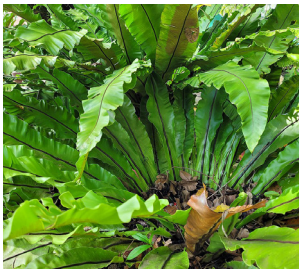
Livistona australis



Hymenosporum flavum



Waterhousea floribunda



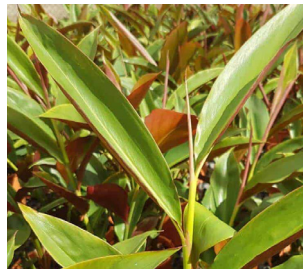
Asplenium nidus



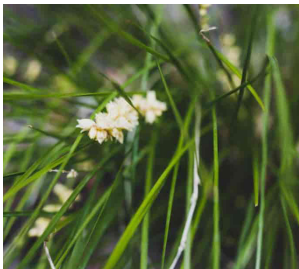
Doodia aspera



Alpinia caerulea



Alpinia caerulea 'Atherton'



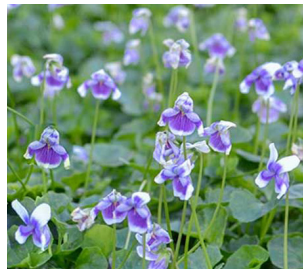
Lomandra spicata



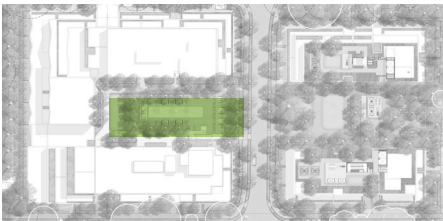
Molineria capitulata



Peperomia enervis



Viola hederacea



KEY PLAN

PLANTING PALETTE | SANDSTONE RIDGETOP WOODLAND

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	MATURE SPREAD
TREES			
<i>Glochidion ferdinandi</i>	Cheese Tree	6m	3m
<i>Tristaniopsis laurina</i> 'Luscious'	Water Gum	6m	4m
SHRUBS			
<i>Banksia serrata</i>	Old Man Banksia	5m	2m
<i>Banksia ericifolia</i>	Heath-leaved Banksia	5m	2.5m
<i>Banksia spinulosa</i>	Hairpin Banksia	0.5m	1.5m
<i>Crowea saligna</i> 'Rosy Glow'	Crowea	1m	1m
<i>Dillwynia floribunda</i>	Egg and Bacon Plant	1m	1.5m
<i>Hakea dactyloides</i>	Finger Hakea	2m	2m
<i>Isopogon anemonifolius</i>	Drumsticks	2m	1m
<i>Leptospermum trinervium</i>	Flaky Barked Tea-Tree	2m	1.5m
<i>Leucopogon setiger</i>	Bearded Heath	1.5m	1m
<i>Persoonia levis</i>	Broad-leaved Geebung	1m	1m
GRASSES, GROUNDCOVERS, FERNS & SCRAMBLERS			
<i>Actinotus minor</i>	Lesser Flannel Flower	0.5m	0.5m
<i>Banksia blechnifolia</i>	Southern Blechnum Banksia	0.5m	2m
<i>Craspedia globosa</i>	Billy Buttons	0.5m	1m
<i>Chrysocephalum apiculatum</i>	Yellow Buttons	0.6m	0.9m
<i>Dampiera stricta</i>	Blue Dampiera	0.4m	0.3m
<i>Entolasia stricta</i>	Wiry Panic	0.8m	1m
<i>Lomandra obliqua</i>	Twisted Mat-Rush	0.6m	0.8m
<i>Lomandra glauca</i> 'Aussie Blue Grass'	Lomandra	0.4m	0.4m
<i>Myoporum parvifolium</i>	Creeping Boobialla	0.4m	2m
<i>Xanthorrhoea media</i>	Grass Tree	1.5m	2m



Glochidion ferdinandi



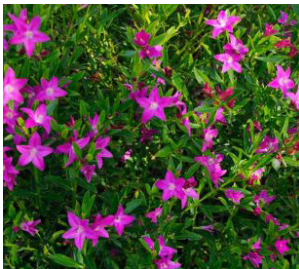
Tristaniopsis laurina



Banksia ericifolia



Banksia spinulosa



Crowea saligna 'Rosy Glow'



Isopogon anemonifolius



Leucopogon setiger



Lomandra obliqua



Dampiera stricta



Xanthorrhoea media



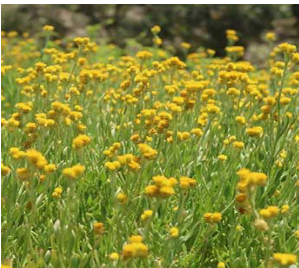
Actinotus minor



Dillwynia floribunda



Craspedia globosa



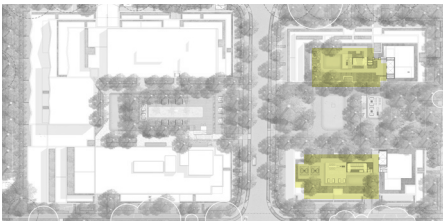
Chrysocephalum apiculatum



Myoporum parvifolium



Banksia blechnifolia



KEY PLAN

PLANTING PALETTE | DCP PROPOSED NEW ROAD

BOTANICAL NAME	COMMON NAME	MATURE HEIGHT	MATURE SPREAD
TREES			
<i>Eucalyptus pilularis</i>	Blackbutt	40m	25m
<i>Flindersia australis</i>	Australian Teak	20m	4m
<i>Hymenosporum flavum</i>	Native Frangipani	6m	4m
<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark	10m	6m
SHRUBS			
<i>Banksia spinulosa</i>	Hairpin Banksia	0.5m	1.5m
<i>Lambertia formosa</i>	Mountain devil	1m	2m
<i>Lomatia silaifolia</i>	Crinkle Bush	1m	1m
<i>Telopea speciosissima</i>	New South Wales Waratah	2m	3m
GRASSES, GROUNDCOVERS, FERNS & SCRAMBLERS			
<i>Dianella caerulea</i>	Blue Flax-Lily	0.8m	1m
<i>Lomandra tanika</i>	Spiny-headed Mat-rush	0.9m	0.8m



Eucalyptus pilularis



Flindersia australis



Hymenosporum flavum



Melaleuca quinquenervia



Banksia spinulosa



Dianella caerulea



Lambertia formosa



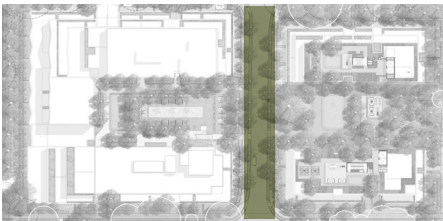
Lomandra tanika



Lomatia silaifolia



Telopea speciosissima



KEY PLAN

MATERIAL PALETTE

STRATEGY

The materials palette will echo the architectural character of the development. The hardscape elements will use a mixture of tones and textures, softening the ground plane and complimenting the lush planting that guides pedestrian movement through and into the site.

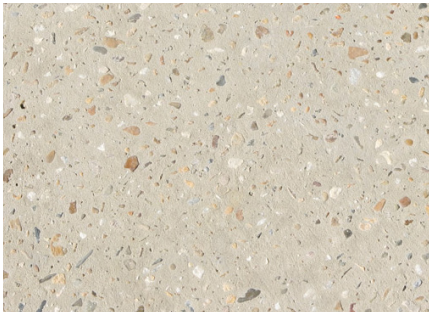
All furniture and fixtures for the site will

- be durable and functional.
- improve ease of access
- Reflective of a contemporary design character
- Adaptable to the needs of the community
- Low carbon options to be incorporated

LANDSCAPE ELEMENTS



In-situ Concrete Footpath to Council Spec.



Earth Tone In-Situ Concrete Paving



Unit Paver



Sandstone Paver



Softfall



Flat Bar Fence and Gate



Black Powder Coated Handrail



In-situ Concrete Raised Planters



Composite Timber Bench



Nature Play Equipment



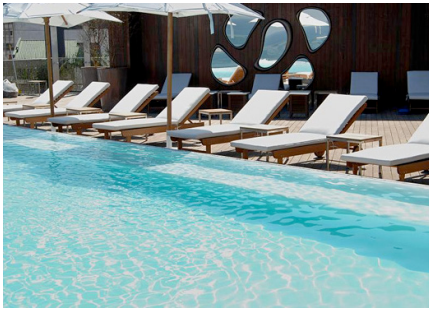
Awning



BBQ



Alfresco Dining Table



Pool



Lounge



Pool Deck & Sun lounge

GREEN INFRASTRUCTURE AND CLIMATE POSITIVE DESIGN



MAXIMISED TREE CANOPY

The primary landscape ESD objective for this new development is to maximise tree canopy with shade trees wherever possible. The benefits of this approach include:

- Increased shade for pedestrian comfort.
- Reduced urban heat island effect.
- Reduced heat load on buildings.
- Improvements in downstream water quality.
- Reduction in runoff volumes.



PASSIVE IRRIGATION AND WICKING BEDS

Landscape areas 22 and 23 to be designed to maximise the use of passive irrigation. Increasing water collection and reducing speed water flows through system. This includes:

- Capturing small storm water events to top up soil moisture reservoirs.
- Potential to capture water from air conditioning condensate to use for plants.
- Wicking beds are sand storage reservoirs at the bottom of the soil profile.
- Where practical make water movement in the landscape visible



MAXIMUM SOIL VOLUME

Sufficient amount of good soil is the foundation of tree planting. For trees to thrive and grow to their maximum canopy the design incorporates the connection to natural ground (deep soil) that will allow exchanges between soil profiles." This means:

- Tree planting beds of approximately 600-800mm deep plus potential 200mm sand wicking bed storage.
- Strata cells under decking area around the pool and in streetscapes to support paving.



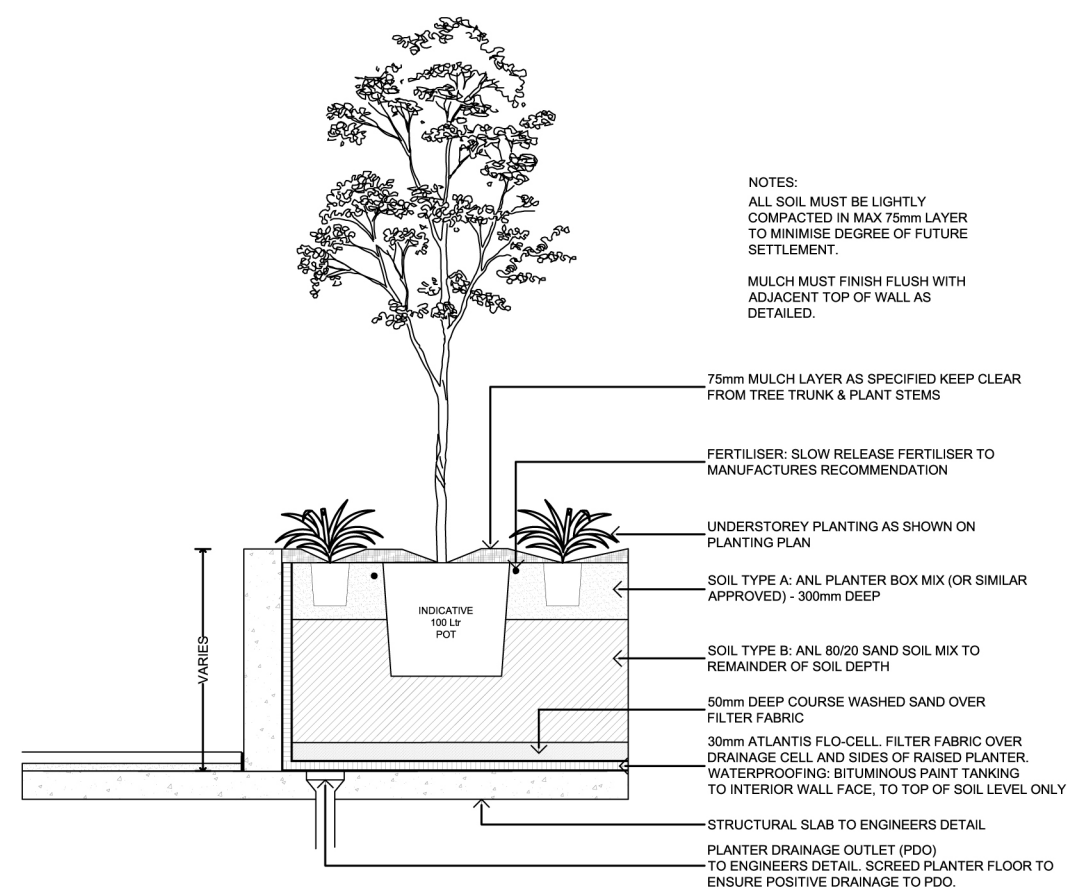
MAXIMISING PERMEABLE SURFACES AND PAVING

Where possible we have sought to replace hard surfaces with permeable or soft surfaces. The importance of this is that it allows to increase water infiltration and minimise urban run-off. Low carbon concrete is recommended for pedestrian paving areas.

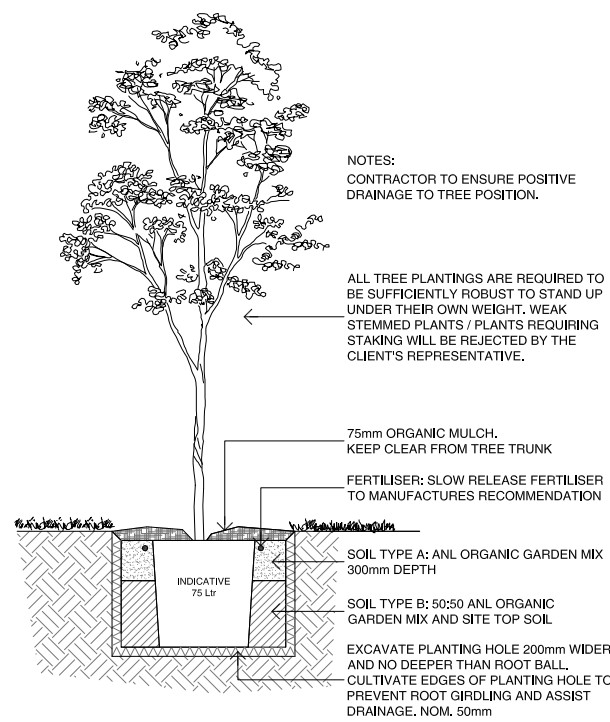
This has been done by reducing the extent of pavements and enlarging the areas of garden beds,

- This maximises the area for capture and storage of water in the soil profile.
- Reducing hard surfaces that can absorb heat during the day.
- Use of low carbon concrete options

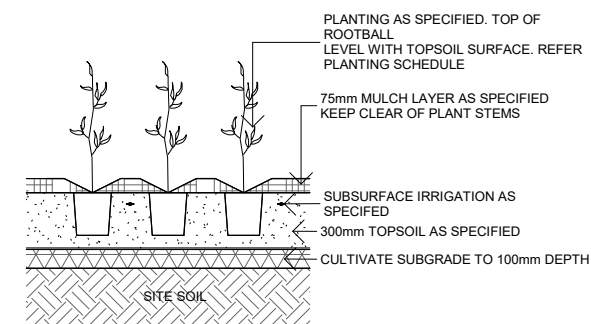
TYPICAL DETAIL



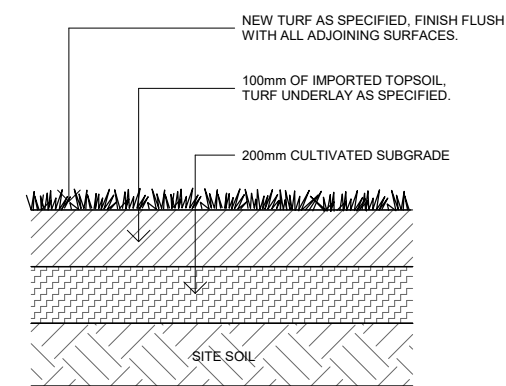
1. TYPICAL DETAIL - PLANTING ON STRUCTURE (IN-SITU) 1:40 @A3



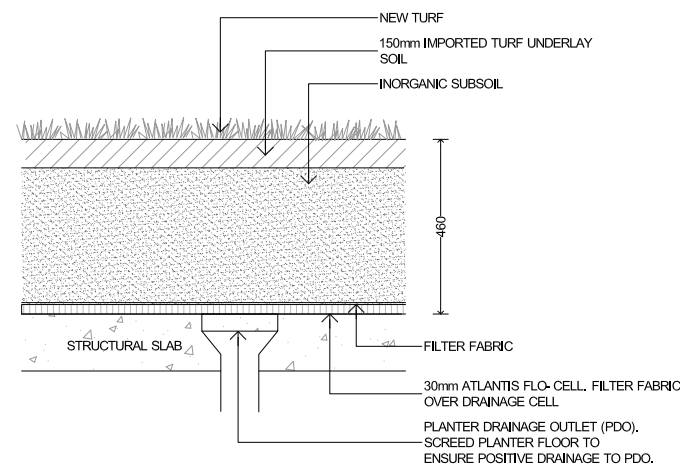
2. TYPICAL DETAIL - TREE PLANTING IN SOIL 1:40 @A3



3. TYPICAL DETAIL - SHRUB PLANTING IN SOIL 1:40 @A3



4. TYPICAL DETAIL - TURF IN DEEP SOIL 1:20 @A3



5. TYPICAL DETAIL - TURF ON STRUCTURE 1:20 @A3

TYPICAL DETAILS | INTENSIVE ROOF GARDEN SYSTEM



- Plant Species**
Refer to specification
- Stone Mulch Layer (14-20mm)**
20mm scoria, recycled concrete or basalt aggregate.
- Hydrocell 40 Extensive Media**
Thickness is specific to the weight allowance for the project.
(Quick check: 11kg/m2/10mm depth as a saturated weight allowance)
- Subsurface Drip Irrigation**
Netafilm XR Techline as @ 400mm centers
- Hydrocell RG30**
Water Reservoir Layer
- Geofabric**
Bidim A14-A24 Geofabric
- Drainage Cell**
Atlantis Flo - Cell 20
- Protection Layer**
Coreflute or LDPE layer
200 micron.
- Waterproofing System Layer**
- Roof Construction**
Refer to Section

Note: Detail refer to Fytogreen Australia.

MAINTENANCE PLAN

The Following is a list of landscape maintenance activities proposed for the landscape areas within the development. Maintenance activities are based on the NATSPEC landscape specification.

GENERAL

Summary of maintenance responsibilities:

- Watering of lawn, garden bed areas, pots.
- Weeding of lawn, garden bed areas, and pavement.
- Supply and spreading of fertiliser to lawn, garden bed areas and pots.
- Supply and installation of mulch to existing garden bed areas and pots.
- Pruning, trimming and tree surgery.
- Pest and disease control of lawn, shrubs and trees.
- Mowing and edge trimming to all lawn areas including collection and removal of clippings.
- Replacement of dead or failed plants.
- Maintenance of irrigation systems.
- Removal of rubbish and debris in garden areas.
- Keeping of a log book.
- Monthly reports.
- Maintenance procedures: To accepted horticultural and arboricultural practice.

Weeding

Weeds: Unwanted broadleaf plants and grasses considered invasive to the locality.

Program:

- Lawns: Quarterly and as determined by the relationship of the general lawn condition and weed growth.
- Trees and Shrubs: As required for planted, paved and mulched areas to be weed free when observed at bi-weekly intervals.
- Method:
- Clear and keep clear vigorous ground covers 200 mm from the base of any shrub or tree:
- Small Areas: By hand.
- Large Areas: Proprietary herbicides.
- Herbicide Application: Avoid windy days or if rain is likely to follow within 12 hours.

Pest and disease control:

- The landscape contractor is responsible for the control of any pest or disease which may affect the lawn and garden bed areas. Actions:
- Identify the problem.
- Execute the correct treatment until the problem has been eliminated.
- Apply hazardous material out of normal working hours.
- Protect staff and public.

LAWN

Mowing and Trimming

Height: Consistent with the growth habit of the grass variety and maintained at 25 mm to 40 mm throughout the year.
Program: Weekly during the mowing season, November to March, and at bi-weekly intervals during April to October. Do not mow under wet conditions.

Raking: Once every month before mowing, during the mowing season, with a flexible rake. On alternate mowings, adopt a north-south and east-west pattern.

Edges: At the same time as mowing, trim lawn edges to plant beds, pathways, base of trees and other obstacles. Ensure trees and shrubs are not damaged.

Fertilising

Apply lawn fertiliser as required to maintain healthy grass cover.

TREES AND SHRUBS

Pruning and Trimming

General: Prune to reflect the natural growth flowering and regrowth habit of the individual species.

Shrubs: Prune after flowering.

Program: Spring and Summer and on a spot basis as required.

Hedge Trimming:

Schedule trimming at times which will maintain the character and design of hedges. Allow up to three times per season.

Tip Pruning:

Do not remove buds before the flowering season in those plants that have terminal flowers.

Purpose: To encourage development of new shoots during the active growing season.

Method: The removal of the top 25 mm or growing tip of each branch.

Radical Pruning:

Purpose: To maintain a hedge or formal shape or when a particular problem, growth habit, damage, or disease requires branch removal.

- Clear and keep clear vigorous groundcovers 200mm from the base of any shrub or tree.
- Use only tools fit for purpose.

Trees, Prune to:

- Eliminate diseased or damaged growth, avoid inter-branch contact and thin out crowns in a natural manner.
- Maintain sight lines to signs and lights.
- Maintain visibility for personal security.

Tree Branch Removal:

- To AS 4373.
- Give notice and engage a suitably qualified ‘arborist’.

Plant Replacements:

General: Replace all evergreen plants that have died or lost 50% of their normal foliage cover.

Provide replacement plants as follows:

- Of the same species and variety and of the closest commercially available size.
- Of uniformly high quality stock equal to the best commercially available.
- Representative of optimum growth for the species as restricted by the container size.
- With a balanced root system in relation to the size of the plant and conducive to successful transpiration. Inspect the root conditions of plants by knocking plants from their containers.
- Without signs of having been stressed at any stage during their development due to inadequate watering, excessive shade/sunlight, suffered physical damage or have restricted habit due to growth in nursery rows.
- Healthy, well grown, hardened off specimens of good shape and free from pests and disease.
- Well rooted and without any indication of having been restricted (pot bound) or damaged at any time.
- Been grown in their final containers for not less than twelve (12) weeks.

Watering

Planting: Water as required to maintain growth rates free of stress.

Turfing: Water to maintain moisture to this depth.

MULCHING

Clean up: Remove all mulching materials off lawn or paved areas and maintain a clean and tidy appearance when viewed on a weekly basis.

Depth: Maintain a minimum depth of:

- 75 mm for organic mulch.
- 50 mm for gravel mulch.

Top up: Areas of excessive wear.

Appearance: Maintain to keep clean and tidy with no soil disturbance evident on the surface of the mulch.

INCIDENTAL WORKS

Supplementary Works

General: Execute the following:

- Removal of rubbish arising from maintenance work.
- Removal of leaf litter fortnightly during leaf fall.
- Wash paving on completion of herbicide application.

Paving

Slip resistance tests:

- Test to AS 4663 annually.
- Notify deviation from the design value.
- Rectify the surface and re-test as required to comply

with the design value.

Furniture, Signage, Barriers and Play Equipment

Scope: All fixed and movable features noted in the record drawings.

Furniture and pots:

- Move and relocate as required for maintenance of the area.
- Repair or replace items damaged by the maintenance contract staff.
- Signage: Maintain sight line visibility.
- Play Equipment: Inspect on a regular basis and inform building manager of any faults.

Drains

General: Inspect and clean all drainage structures and pit covers and ensure that they are in proper working order.

Frequency: As required so that all overflow drains are cleared when observed at fortnightly intervals.

IRRIGATION

Irrigation system program: To suit the following:

- The precipitation requirements of the individual zones/ stations with regard to types of plants.
- The infiltration rate of the soil/medium and associated physical factors seasons, evaporation, exposure, topography, local authority restrictions.
- An allowance for adjustment or shut down during and after periods prolonged heavy rains.
- To co-ordinate water supply and to confirm watering regime against federal and state government legislation and restrictions at the time.

Equipment maintenance:

- Check all components for proper operation.
- Repair or replace damaged component with equivalent parts.
- Flush any dirt or foreign matter from the system and clear all blockages.

Operation:

Ensure by adjustment or replacement of components, that the overall operation of the system is efficient and operational.

Supervision:

Prevent excessive use of water.



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