

Appendix 7

Engineering & Servicing

Christchurch Grammar School
C/- Total Project Management
Level 6, 1008 Hay Street,
PERTH WA 6000

17 July 2021
BMS/2462-LET-001 R4

Attention: Edward Neville

Dear Ed,

**RE: CCGS – LOT 2 MCCLEMANS ROAD, MOUNT CLAREMONT
ENGINEERING SERVICING REPORT**

The following provides a broad overview of the existing conditions and the engineering servicing to support the proposed rezoning of the CCGS Mount Claremont Playing Fields (CCGS Playing Fields) to facilitate redevelopment in the form of residential development and public open space. The proposal will deliver a residential development outcome in a landscape setting including a landscape transition on the eastern (McClemans Road) and southern (Fortview Road) borders of the subject site to existing development.

Retention of the existing tree canopy throughout to facilitate landscape setting and transition to surrounding residential development and Bold Park is a key outcome.

SITE LOCATION

The existing playing fields site of approximately 8ha, is located to the west of Rochedale Road in Mount Claremont, approximately 8km to the west of Perth City. The site is bounded by McClemans Road to the east, Fortview Road to the south and regional open space to the north and west.



Figure 1: The Site

SITE DESCRIPTION

The site has been developed as level playing fields with belts of trees running north/south and east/west between the fields and around the central pavilion area.

The site is generally presented on two levels with the northern playing fields at about RL 30m and 32m AHD and the lower playing fields at about RL 26m and 24m AHD, separated by a nominal 8m embankment to the east of the pavilion and a 4m embankment to the west of the pavilion.

The NW corner of the site has a steep embankment rising to RL 46m AHD, with high ground on the northern boundary up to about 36m AHD. The SE playing field at RL 24m AHD sits below both McClemans Road and Fortview Road, with that intersection sitting above the site at RL 30m AHD.

EARTHWORKS

To provide suitable lot relativity to many of the existing trees that are to be retained and to the surrounding developments, it is anticipated that the lots located over the south eastern playing fields will be filled to achieve a minimum development level of about 24.75m AHD.

Subject to further detailed planning it is anticipated that fill will be required to facilitate future subdivision and development. The extent of cut and fill is to be minimised to maintain the existing landform, retention of trees and to allow for connection to services.

To address the significant level differences across the site, retaining walls will be required, particularly along lot rear boundaries to provide flat lots while tying into the existing variable ground and development levels.

With sand overlying Tamala limestone it is anticipated that the site will readily provide a Class 'A' site classification.

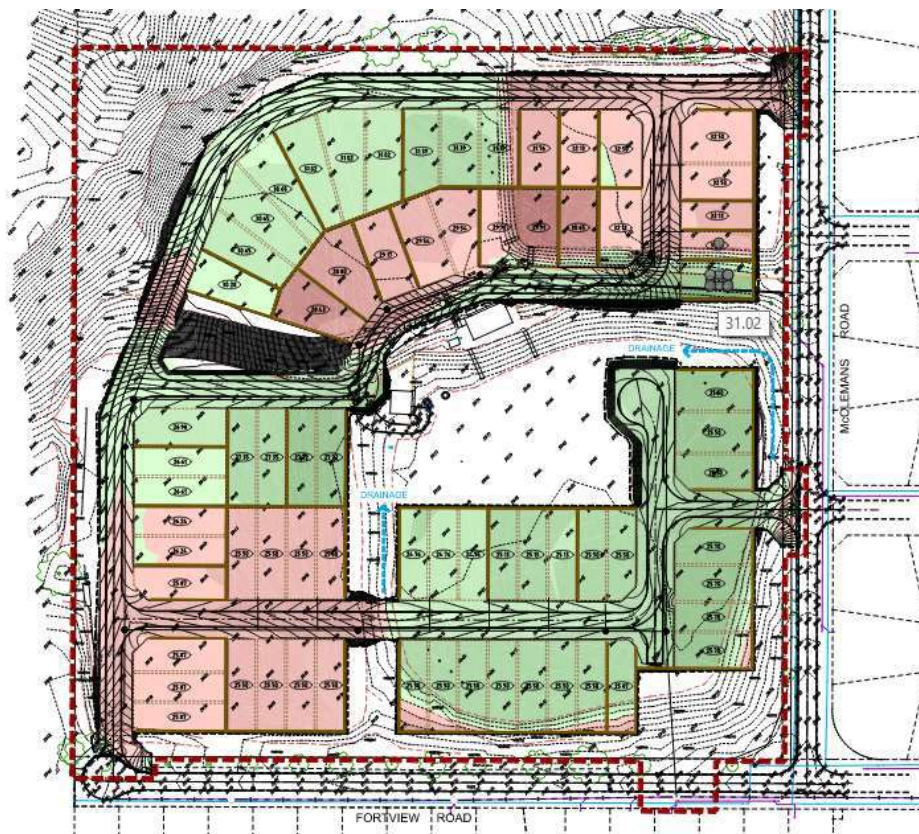


Figure 2: Earthworks Levels and Cut to Fill Plan

ROAD ACCESS

Access to the site is available from Rochedale Road to the east via Fortview, Barnsley and Teslin Roads.

All roads will be designed in accordance with the Town of Cambridge guidelines.

STORMWATER DRAINAGE

As this site is at the low point of the local drainage catchment, there is no external outfall or discharge opportunity so the development will need to cater for the 1% AEP rainfall event with discharge to local drainage basins or swales within the development via pipework for the 20% AEP and overland flow for greater events. The stormwater drainage system for the local road network will need to be designed and constructed in accordance with Council requirements.

Drainage storage will need to provide for initial flows to bio retention areas (BRA) or subsurface storage cells and major storm events to storage basins or swales.

It is anticipated that there will be 4 or 5 BRAs to provide for about 115m³ of treatment volume and 3 flood storage areas to provide for a storage volume of about 730m³, although this will be further defined at the LWMS or Structure Planning stage.

Given the sandy nature of the ground and with the ground water level at about 1m AHD, infiltration at the low points is not anticipated to be an issue.

WASTEWATER

Existing sewers are located in both Fortview Road and McClemans Road. The existing sewer connection for the site is located in McClemans Road at IL 24.84m AHD but is too shallow to service the full development site without considerable fill. A sewer connection will instead be provided off the existing sewer in Fortview Road, to the west of the intersection with McClemans Road, at IL 22.29m AHD, which will service the site if a minimum development of about 24.75m AHD is adopted.



Figure 3: Existing Wastewater Reticulation

The Water Corporation has advised that the proposed rezoning of Lot 2 McClemons Rd to R20 at 75% net developable area has increased the sewer design flow of the sub catchment by 1.3 L/s (12.1 L/s) and the long-term pump rate at Montgomery Ave WWPS by 1.7 L/s (33.2 L/s). The Montgomery Ave WWPS is a Type 40 pump station and has sufficient capacity to take the additional flow, with no pump upgrades required.

Based on current land zoning and long-term planning, the sewer design flow through the DN300 gravity sewer between access chambers Y1348 to Y6875 (approximately 169m length) will reach 75% full pipe capacity. This sewer pipe section could potentially require an upgrade in the future if the land zoning further increases and the pipe capacity goes over current design standard limits. However, based on current estimates no pipe upgrades are required immediately.

WATER RETICULATION

An NB460 RC distribution main is located in McClemons Road as well as NB100 water reticulation lines in both McClemons Road and Fortview Road. Normal development practice would result in the site water reticulation being constructed as a loop and connected to both reticulation lines.

The Water Corporation has advised that the proposed development area is within the Bold Park Gravity water zone and can be supplied from the existing water network at McClemons Road.

Their modelling, based on net developable area of 3.5270Ha zoned R20 and existing ground contours, indicates very little impact on the system hydraulics (0.5m pressure drop).

Therefore, the site can be serviced with no upgrades required to the existing scheme.

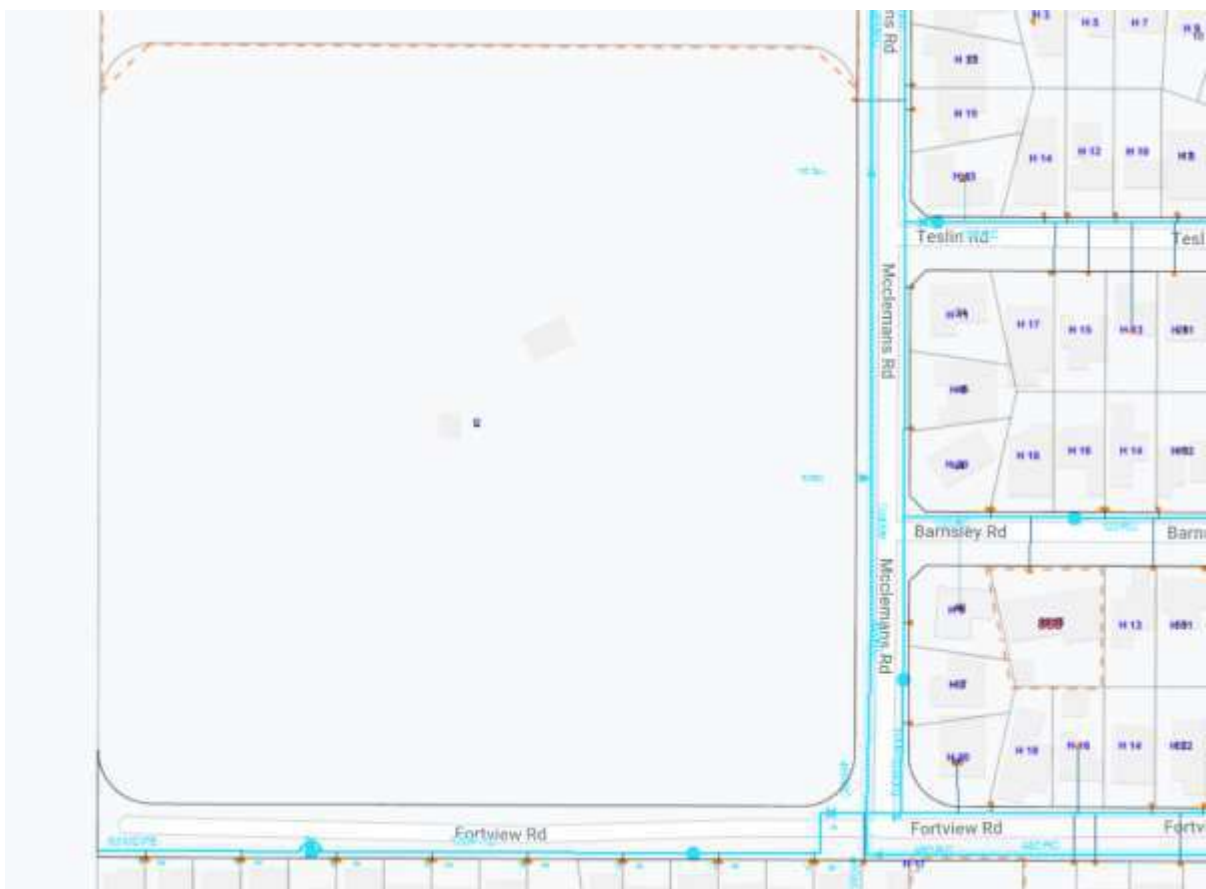


Figure 4: Existing Water Reticulation

POWER SUPPLY

Based on the concept layout and the Western Power UDS manual, the total load requirement is approximately 900kVA, with the Network Capacity Mapping Tool indicating the area is constrained with between 5MVA and 10MVA available, with supply being fed from the Wembley Downs Zone substation. Advice from Western Power on how the load will be connected to the HV network will require a WP Feasibility Study to be undertaken, which would take of the order of 3 to 4 months.

There is a 315kVA transformer located on McClemons Road near the intersection with Teslin Road, which could be upgraded to a 630kVA or 1,000kVA transformer. There is also a second 315kVA transformer located in a POS adjacent to an existing house in Fortview Road at the end of McClemons Road which may need upgrading to a 630kVA transformer and which could be relocated across the road and into the POS if required.



Figure 5: Available Power

COMMUNICATIONS

Communications is based on an NBN compliant pit and pipe network. There is existing Telstra communication infrastructure in the area. The development area will need to apply for a Master Agreement to extend the network, with a \$600 per lot NBN Fee. Each Master Agreement is valid for 7 years.

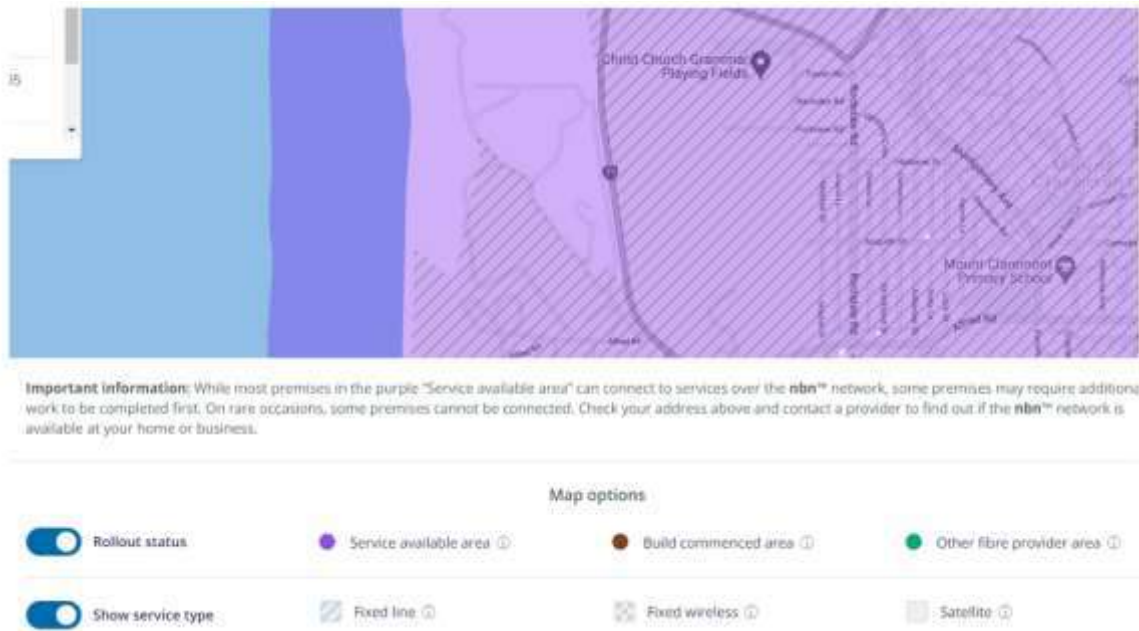


Figure 6: Available NBN Service

GAS RETICULATION

There are ATCO Gas assets located in the immediate vicinity of the subject site. The general arrangement is that the developer supplies the trench and ATCO Gas install the main at their cost. Gas reticulation is not a condition of subdivision and therefore not essential to development.

Should you wish to discuss any aspect of the above, please do not hesitate to contact the undersigned.

Yours sincerely
TABEC Pty Ltd

BARRY SMITH
Director

Appendix 8

Preliminary Concept Plan



Preliminary Concept Plan

Lot 2 (2) McClemans Road, Mount Claremont

Date: 12 Jan 2022 Scale: 1:1500 @ A3 1:750 @ A1 File: 20-228 CP-1 Staff: AH AL Checked: AL



element.

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

Appendix 9

Landscape Design Report

LOT 2 McCLEMAN'S ROAD MOUNT CLAREMONT

PRELIMINARY LANDSCAPE DESIGN REPORT

AUGUST 2021





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REVISION	DATE	ISSUE OR AMENDMENT	BY	REVIEWED
A	25/06/2021	PRELIMINARY DESIGN COMMENTS	MM	SC
B	06/07/2021	PRELIMINARY DESIGN COMMENTS	MM	SC
C	15/07/2021	ISSUE FOR SCHEME AMENDMENT	MM	SC
D	19/07/2021	DESIGN COMMENTS AMENDMENTS	IA	SC
E	13/08/2021	COUNCIL COMMENTS AMENDMENTS	MM	SC

1.0 Landscape Concepts

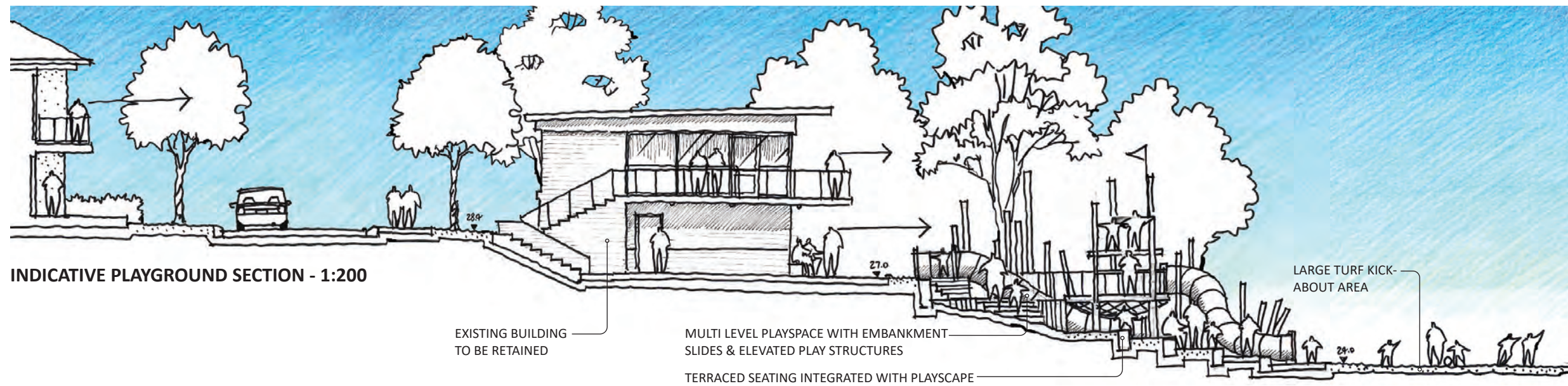
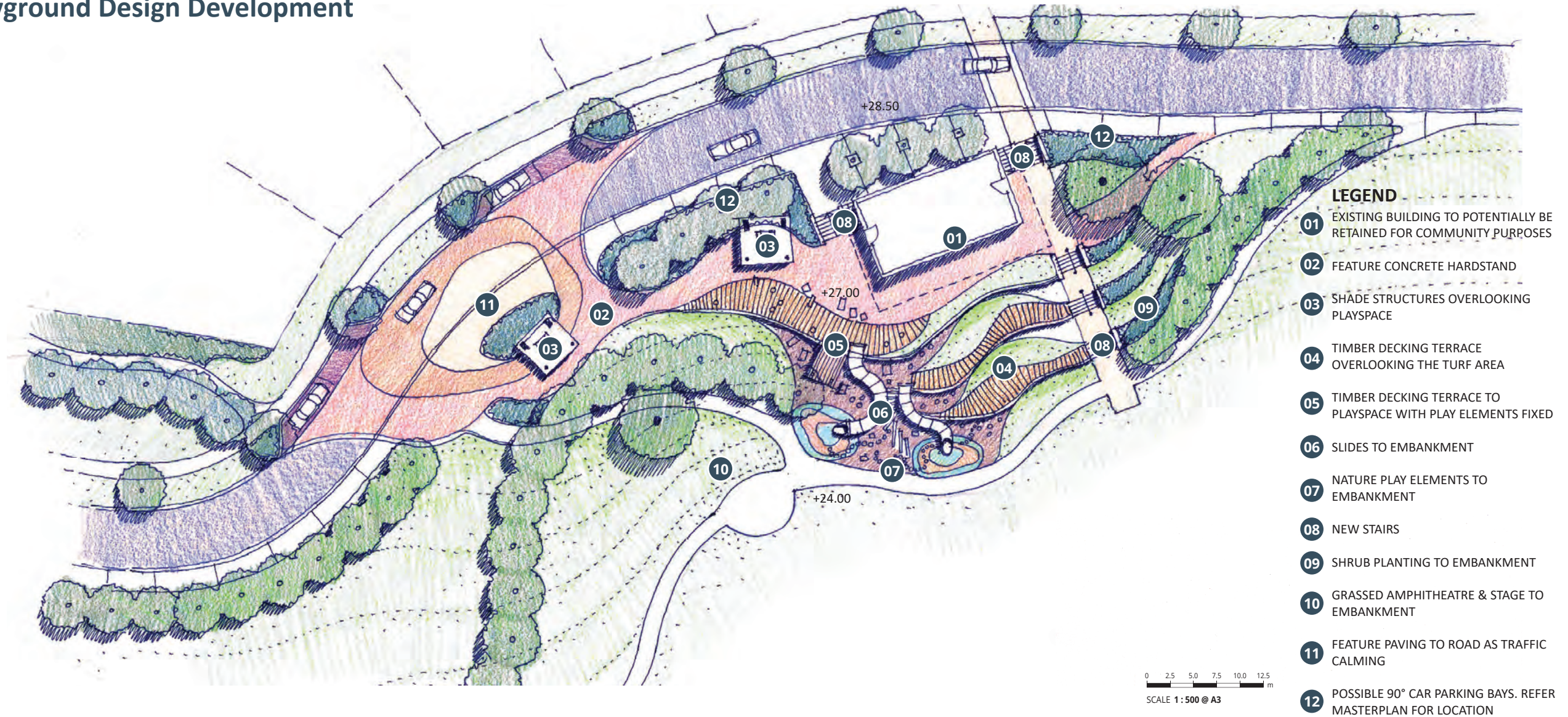
1.1 Overall Masterplan



1.2 Central POS Design

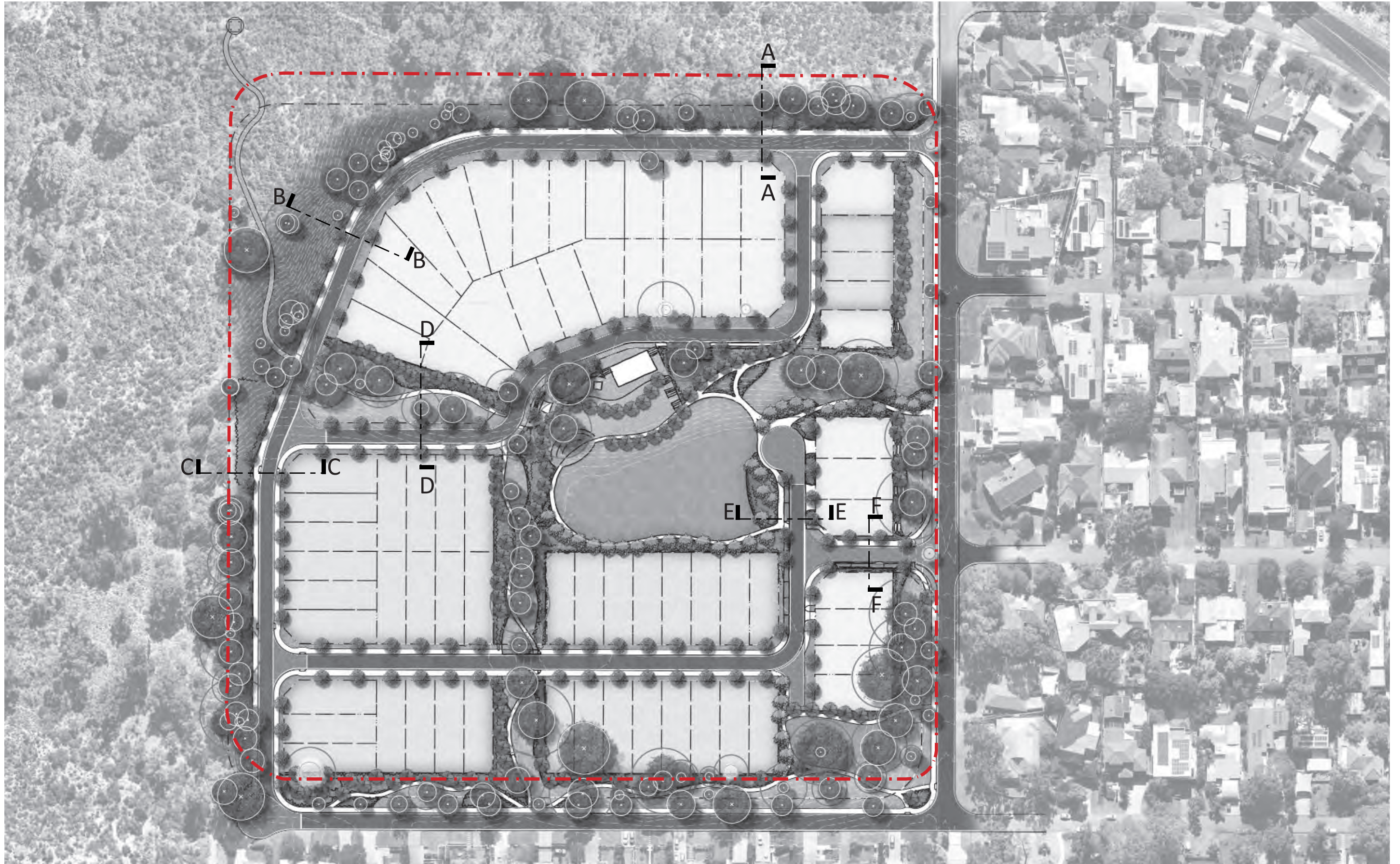


1.3 Playground Design Development

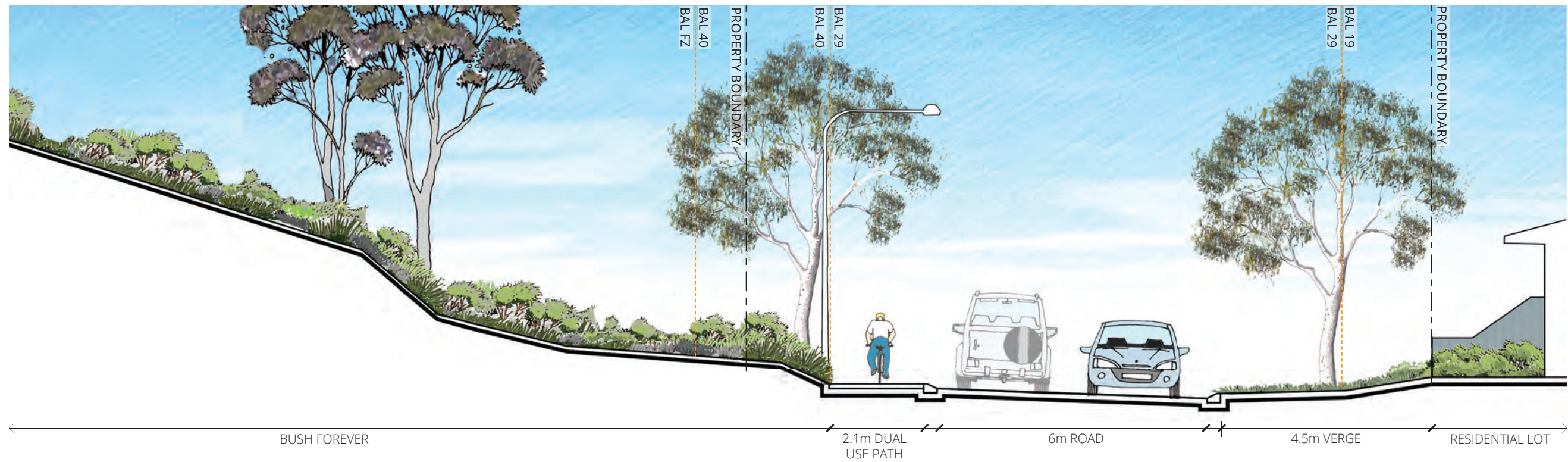


2.0 Site Sections

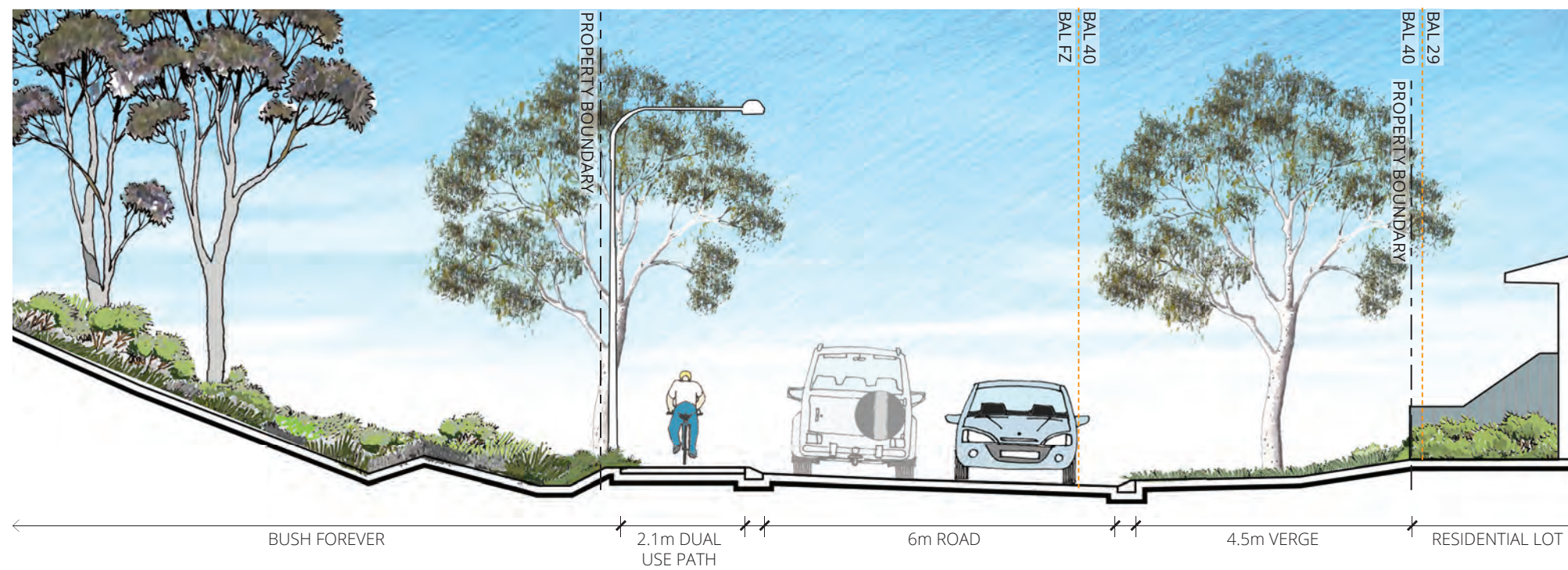
2.1 Section Locations



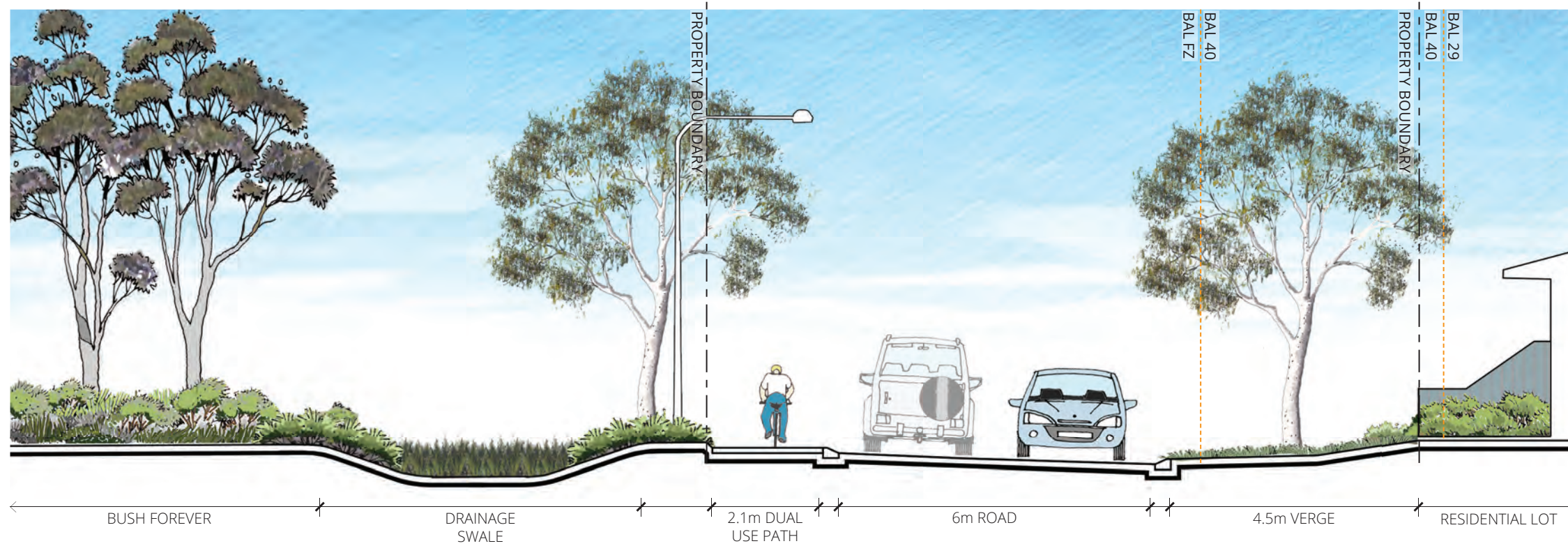
2.2 Section A - 1:100



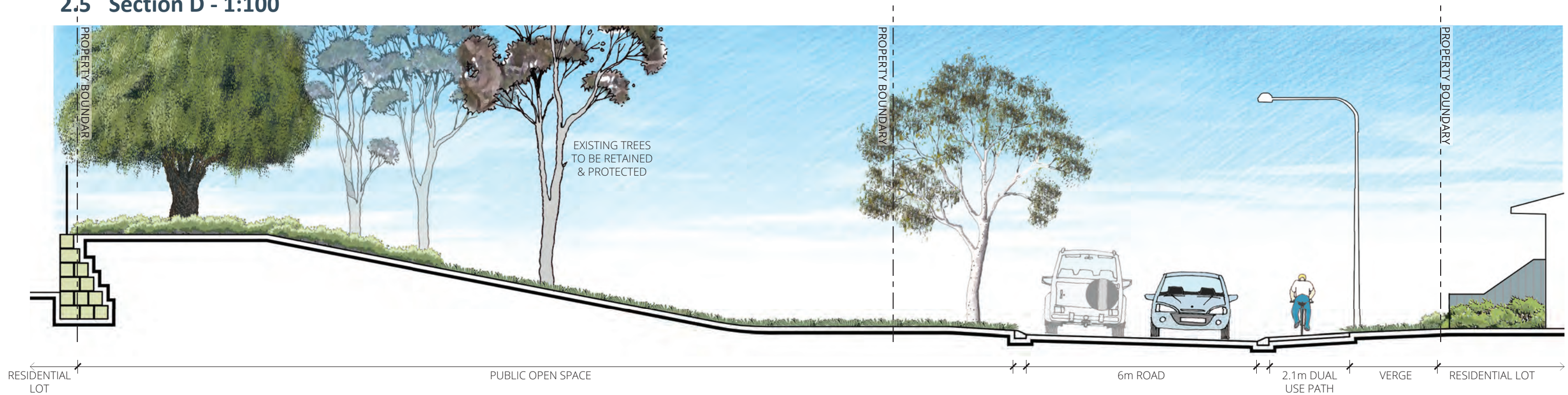
2.3 Section B - 1:100



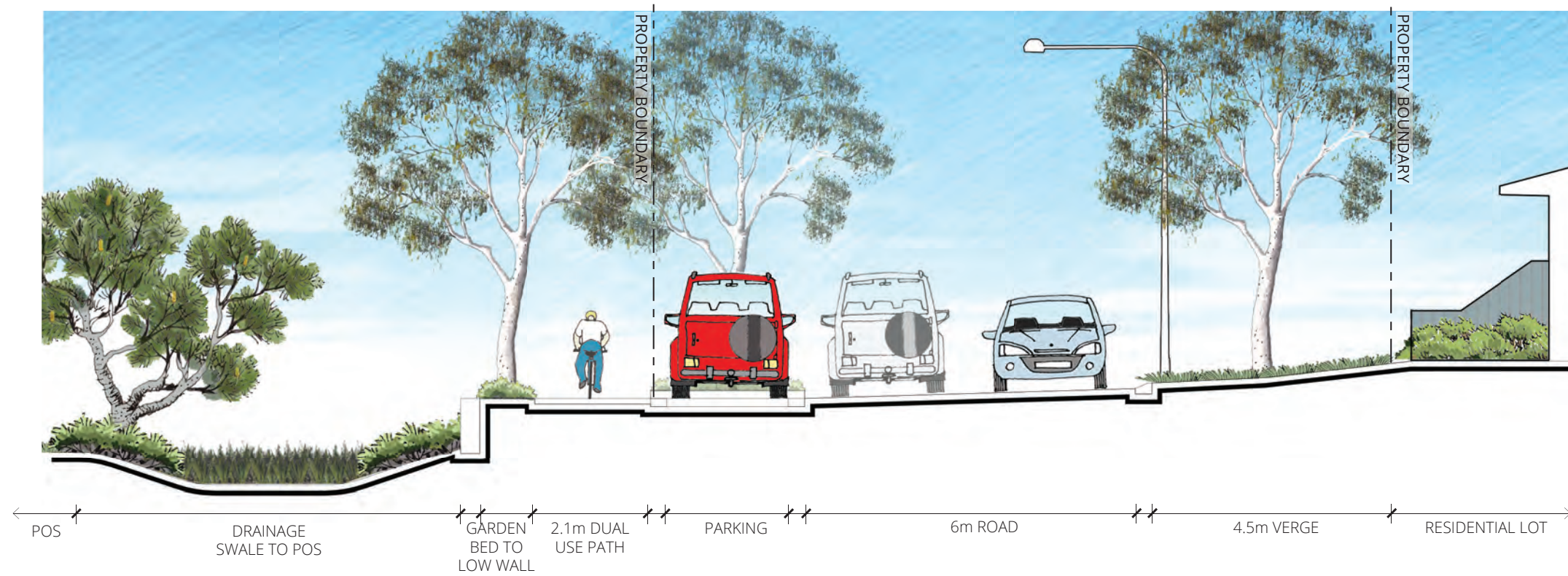
2.4 Section C - 1:100



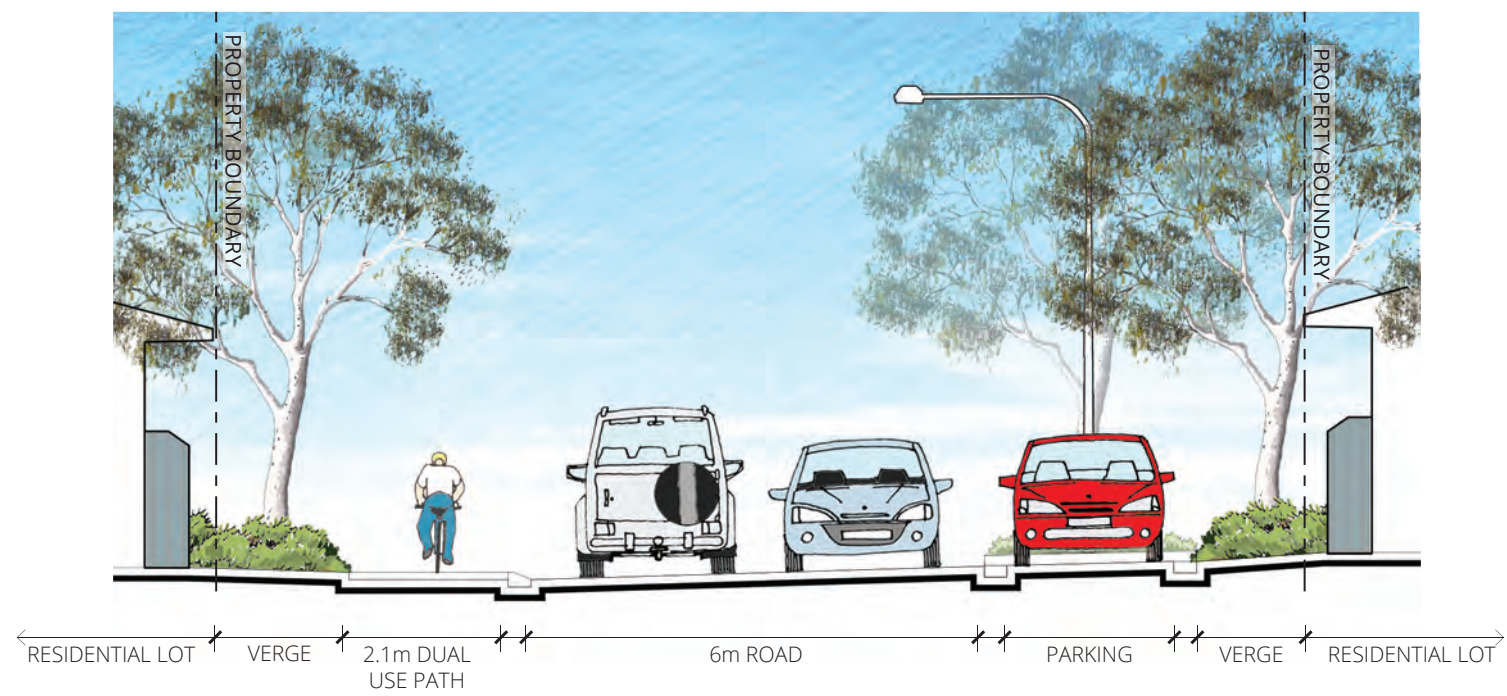
2.5 Section D - 1:100



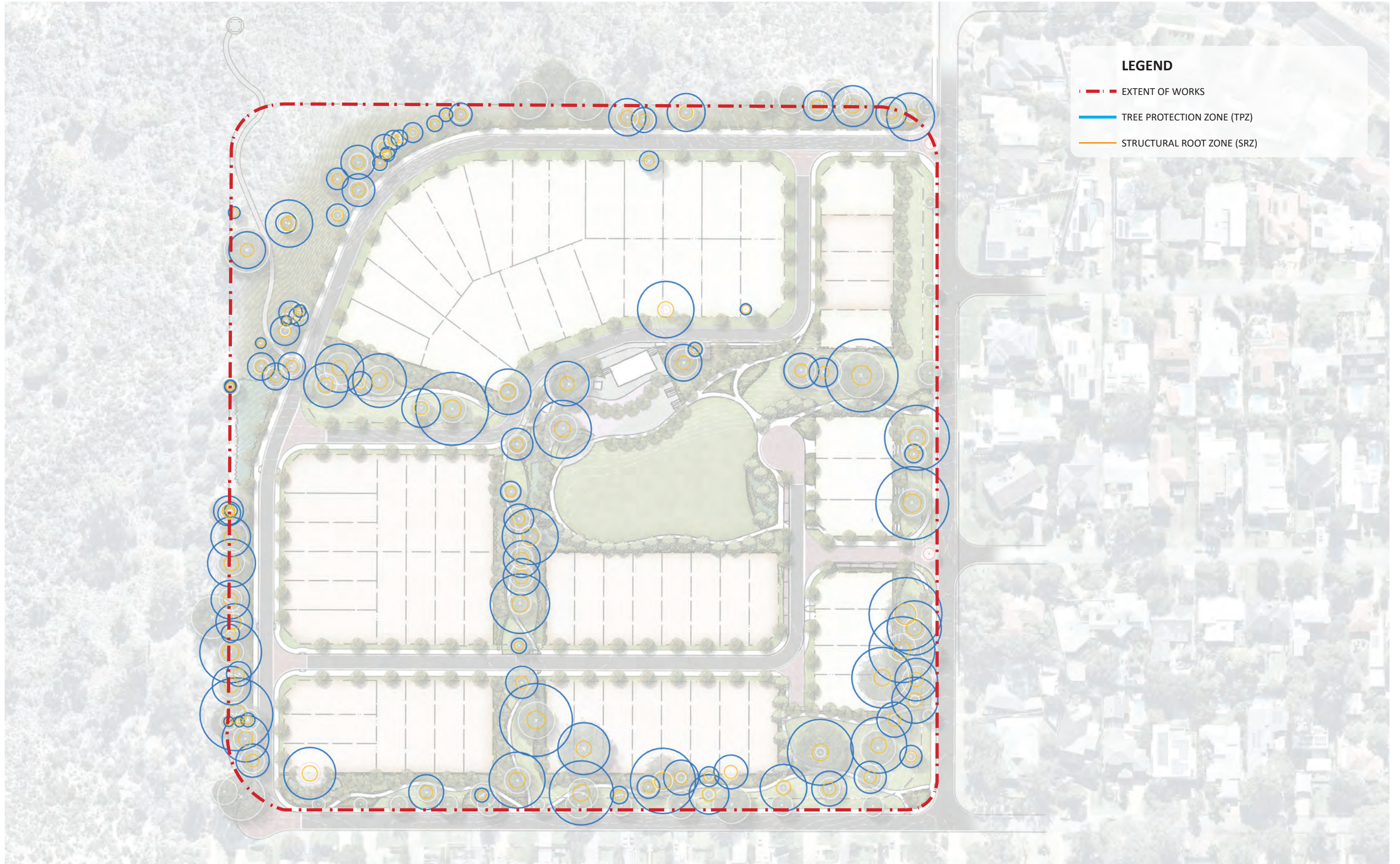
2.6 Section E - 1:100



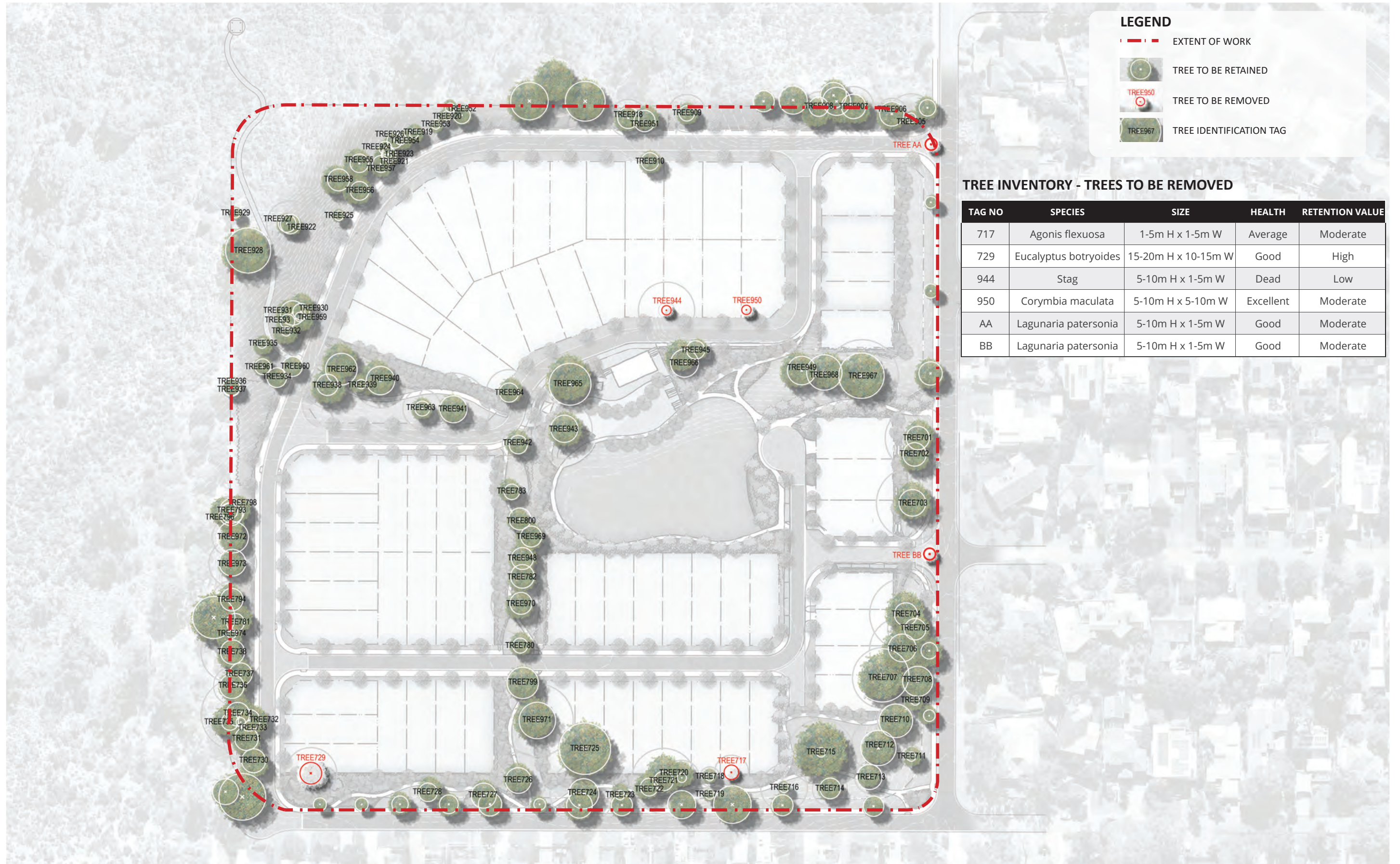
2.7 Section F - 1:100



3.0 Tree Protection Zones



4.0 Tree Retention Plan

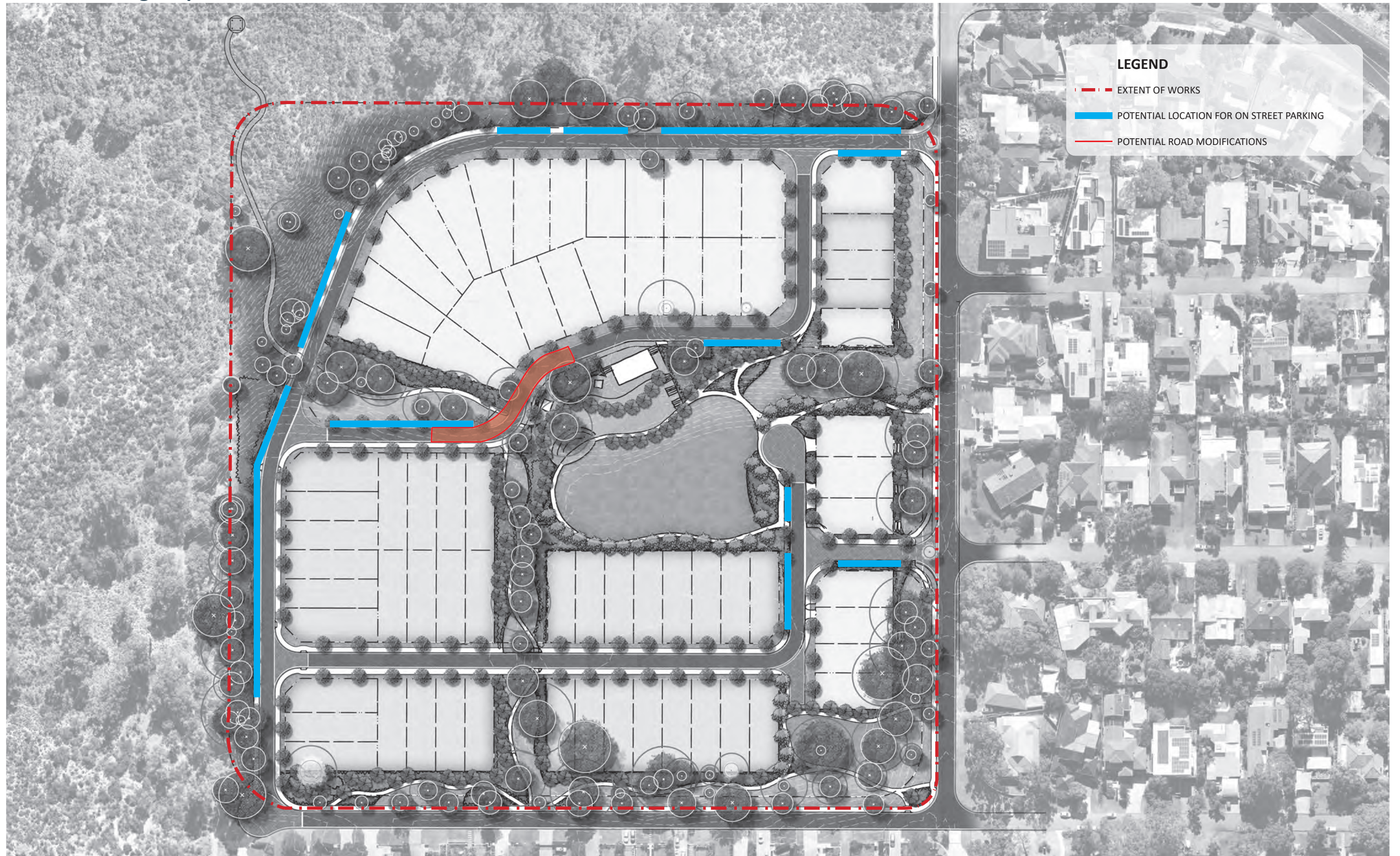


5.0 Development Drainage

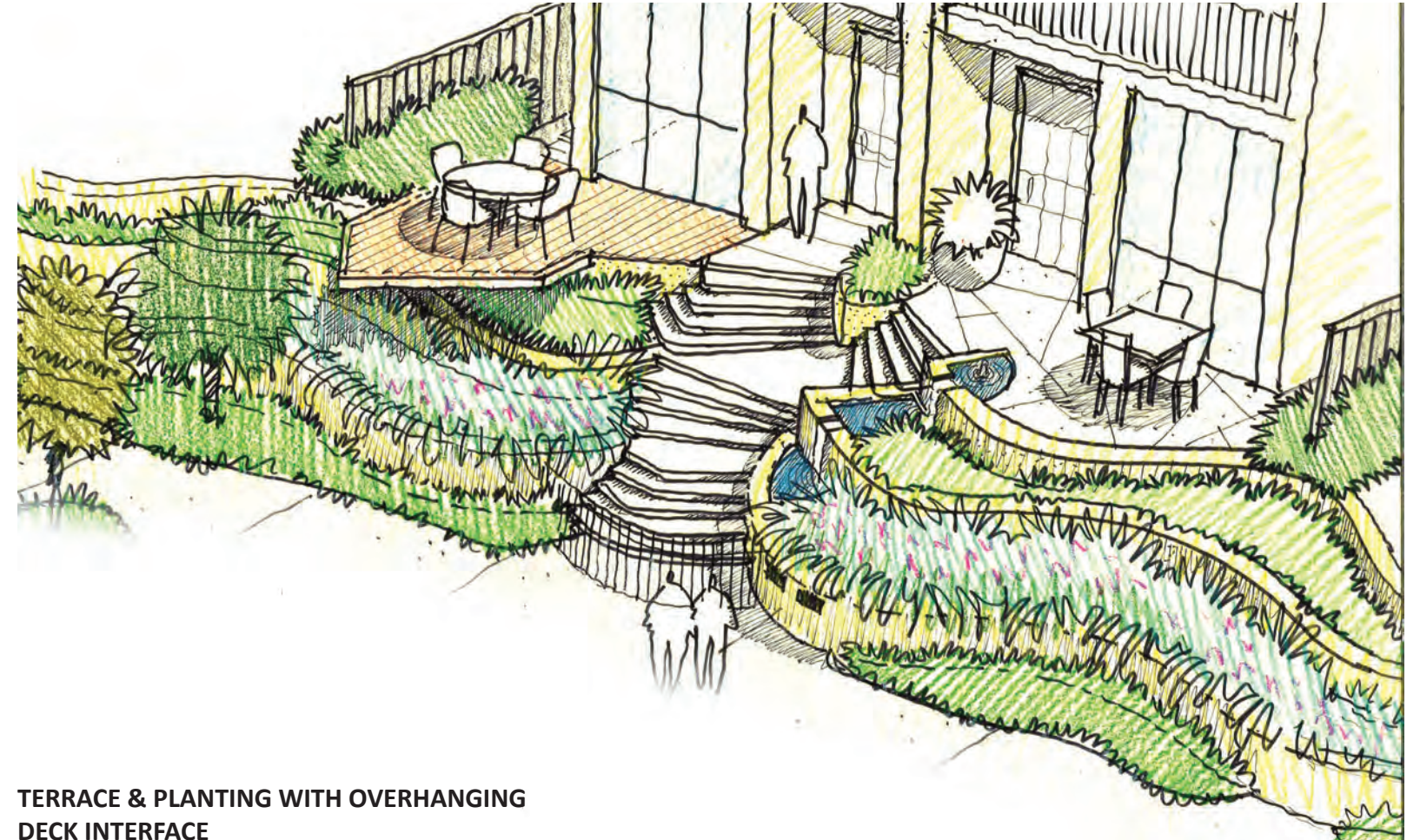
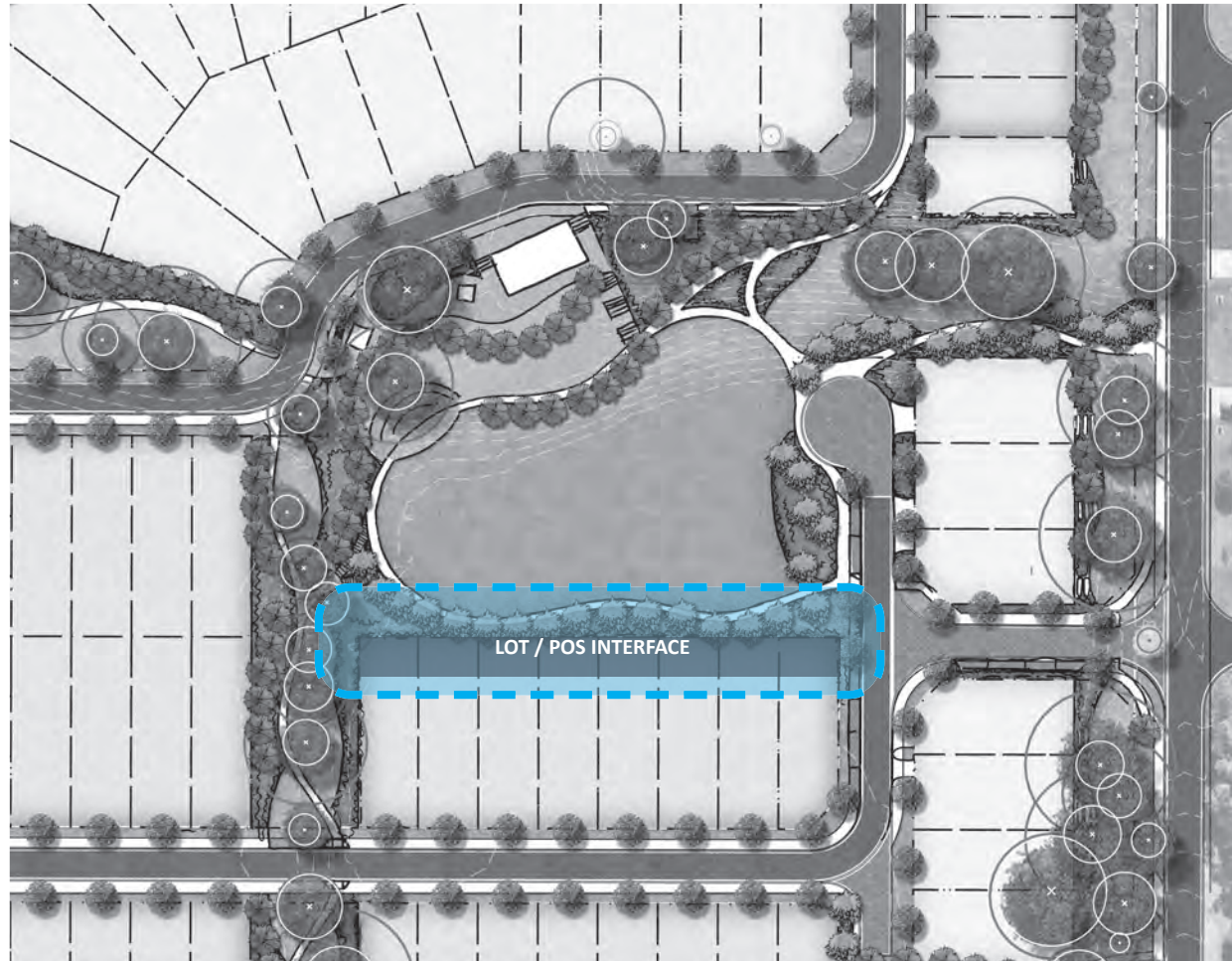


6.0 Overall Design Ideas

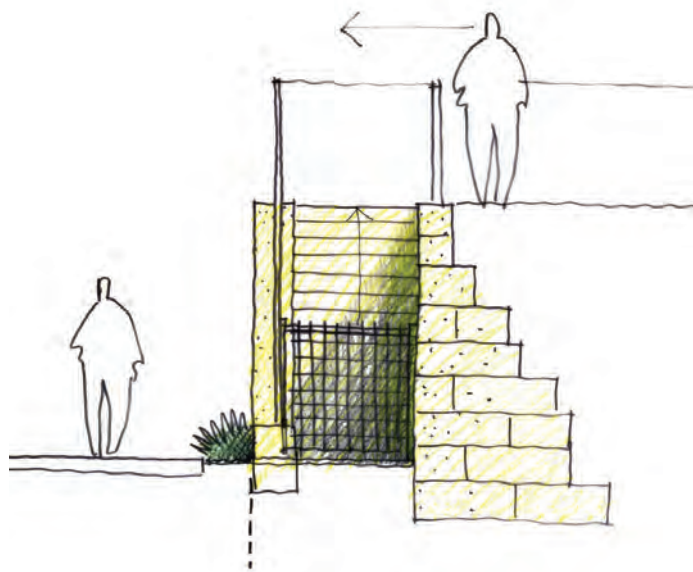
6.1 Civil Design Inputs



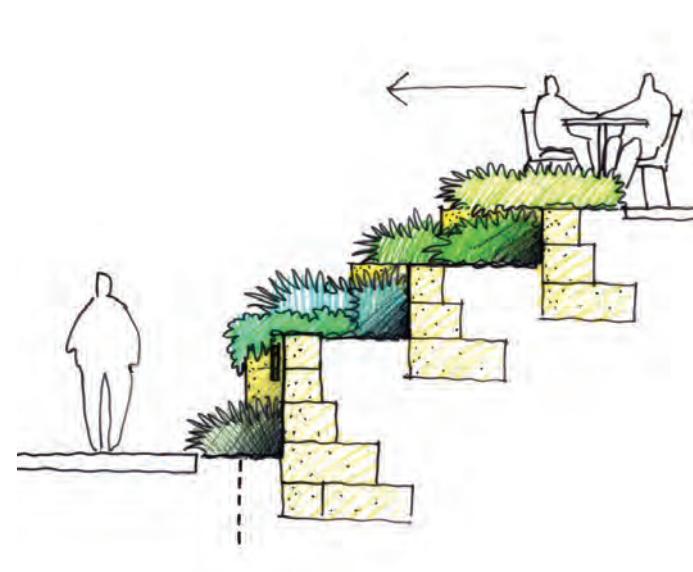
6.2 Lot/POS Interface Options



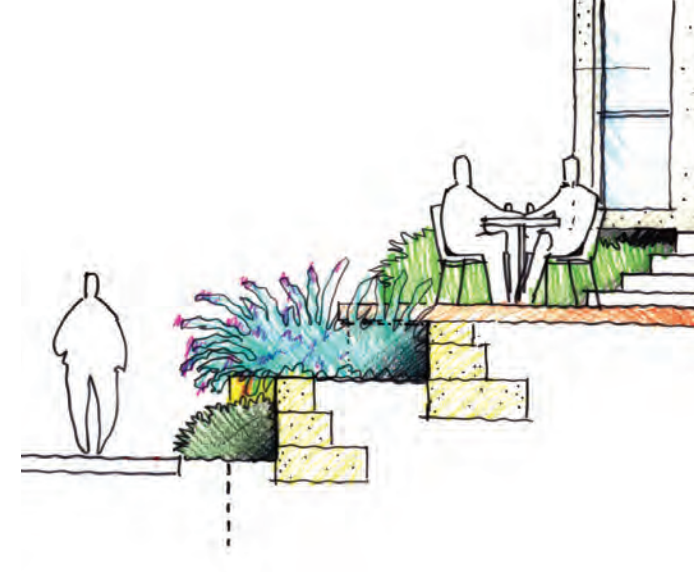
TERRACE & PLANTING WITH OVERHANGING DECK INTERFACE



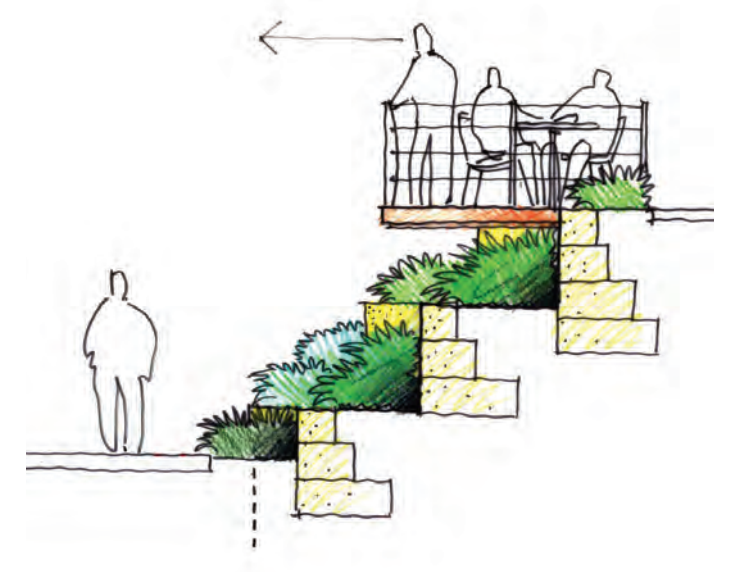
TYPICAL INTERFACE - WITH ENTRY STAIRS



TERRACE & PLANTING INTERFACE

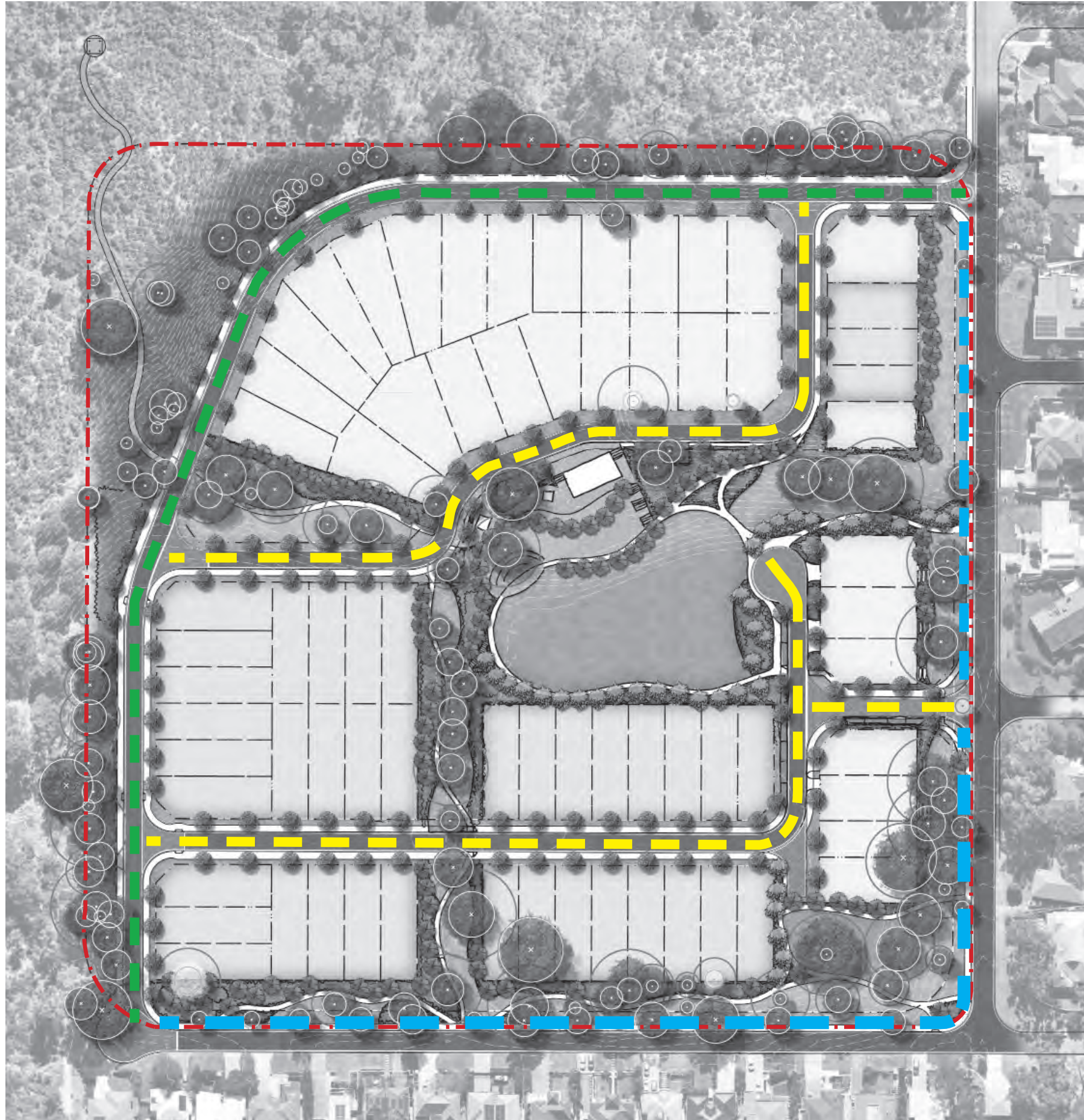


TERRACE & PLANTING WITH OVERHANGING DECK INTERFACE



TERRACE & PLANTING WITH OVERHANGING DECK INTERFACE

7.0 Street Tree Masterplan



STREET TREES TO EXISTING STREETScape



Pyrus ussuriensis
'Manchurian Pear'



STREET TREES TO INTERNAL STREETS



Agonis flexuosa
'WA Peppermint'



Corymbia ficifolia
'Red Flowering Gum'

STREET TREES TO PERIMETER STREET



Eucalyptus marginata
'Jarrah'



Eucalyptus gomphocephala
'Tuart'

8.0 Planting Palette

8.1 POS Tree Planting



Agonis flexuosa
'WA Peppermint'



Corymbia ficifolia
'Red Flowering Gum'



Eucalyptus marginata
'Jarrah'



Eucalyptus gomphocephala
'Tuart'



Banksia attenuata
'Slender Banksia'



Banksia menziesii
'Firewood Banksia'

8.2 Swale / Drainage Planting



Ficinia nodosa



Grevillea preissii



Lepidosperma gladiatum



Lepidosperma longitudinale



Juncus kraussii subsp. *Australiensis*



Juncus pallidus

8.3 POS Shrub & Ground Cover Planting



Alyxia buxifolia



Olearia axillaris



Macrozamia riedlei



Melaleuca systema



Grevillea crithmifolia



Banksia nivea



Acacia lasiocarpa



Schoenus grandifloras



Allocasuarina humilis



Lechenaultia lineroides



Calothamnus quadrifidus



Banksia sessilis



Acacia cyclops



Acacia cochlearis



Eremaea pauciflora



Hakea prostrata



Westringia fruticosa 'Coastal Rosemary'

8.4 Bold Park Interface / Revegetation Planting



Acacia lasiocarpa



Acacia cochlearis



Allocasuarina humilis



Allocasuarina lehmanniana



Austrostipa flavescens



Banksia sessilis



Calothamnus quadrifidus



Chamelaucium uncinatum



Clematis linearifolia



Dianella revoluta



Grevillea crithmifolia



Hardenbergia comptoniana



Hemiandra pungens



Jacksonia calcicola



Lechenaultia linarioides



Melaleuca systema



Olearia axillaris



Rhagodia baccata



Schoenus grandiflorus

9.0 Material Palette



Exposed Aggregate Concrete
Holcim: Sandstone Pebble



Stacked Stone Terrace Walls



Feature Stone Paving
'Endicott' Filetti by Eco Outdoor



Spotted Gum Timber Decking



Custom Shade Structures
Timber Arbor Roofing



Inclusive Picnic Settings
Street + Garden SIT



Bench Seats
Street + Garden SIT



Rubbish Bins
Street + Garden SIT

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Level 18, 191 St Georges Tce, Perth WA 6000
T. (08) 9289 8300 – E. hello@elementwa.com.au
elementwa.com.au