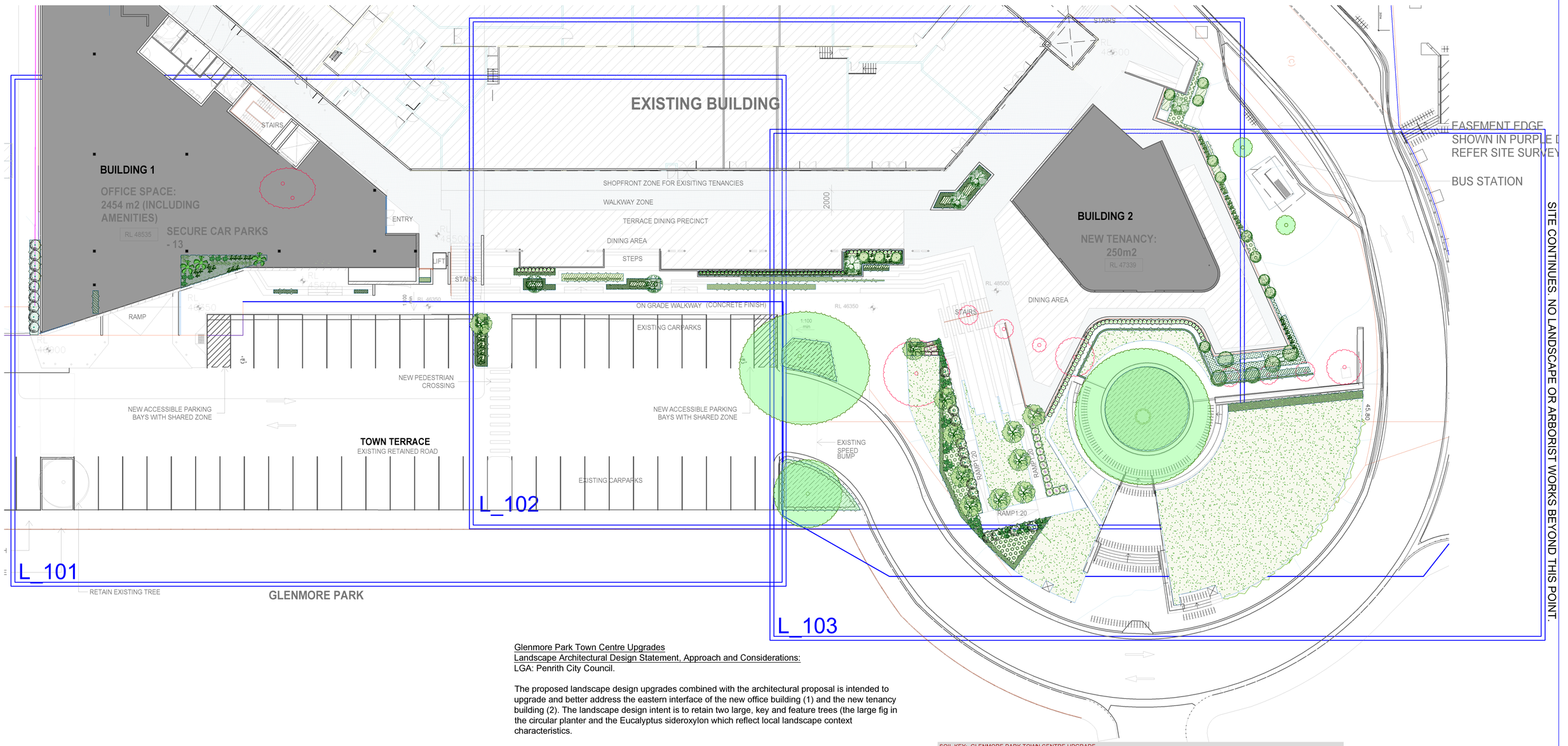
SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS PROPOSED BEYOND THIS POINT.



SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS BEYOND THIS POINT.

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS BEYOND THIS POINT.

PROJECT: Glenmore Park Town Centre Upgrade. NSW.

Landscape Architectural DA Drawing Schedule:

•	L_100	Coversheet, Site Plan, Design Statement & Drawing Schedule	1:200 at A1
•	L_101	Landscape Plan Southern Zone	1:100 at A1
•	L_102	Landscape Plan Middle - Terraces Zone	1:100 at A1
•	L_103	Landscape Plan Northern Lawn Zone	1:100 at A1
•	L_501	Landscape DA Notes, detail and Planting Schedule.	A1

Glenmore Park Town Centre Upgrades

Landscape Architectural Design Statement, Approach and Considerations:

LGA: Penrith City Council.

The proposed landscape design upgrades combined with the architectural proposal is intended to upgrade and better address the eastern interface of the new office building (1) and the new tenancy building (2). The landscape design intent is to retain two large, key and feature trees (the large fig in the circular planter and the Eucalyptus sideroxylon which reflect local landscape context characteristics.

The proposed new landscape intends to reinforce and continue that local landscape characteristic with two key feature native trees in the carpark frontage of Building 1.

The upgrade of the terrace precinct intends to connect pedestrian activity and usage through terraced seating facing east and outdoor dining area. Smaller to medium sized flowering deciduous trees are proposed within this zone to give a more intimate/human scale to the terrace dining precinct and allow for winter sunlight and summer shade. Hardy shrubs are proposed to fill in these garden beds and provide interest and visually soften and delineate the surrounding terraces to define varied seating options and provide visual clues to wayfinding (paths, entries, and ramps).

The upgrade around building 2 focusses on bringing pedestrian amenity and useability out to the regraded lawn zones by encouraging movement onto the lawns, opening up clear sightlines (currently obscured by smaller vegetation), and allow the lawn zones to be useable for casual seating and as a setting visible to the entrance with the central focus remaining as the ficus tree.

Whilst the landscape proposed incorporates all hardy planting, irrigation is proposed to assist in providing optimal establishment and design intent outcome.

SOIL KEY: GLENMORE PARK TOWN CENTRE UPGRADE.

THE SOIL TYPES STATED CORELLATE WITH THE SOIL PERFORMANCE SPECIFICATIONS IN: *Leake and Haege, 2018, Soils for Landscape Development. CSIRO Publishing.*

FOR ON GRADE GARDEN BED ZONES INSTALL:
TOPSOIL: TO MEET SOIL SPECIFICATION TYPE: D2 SPECIFICATIONS: 'GARDEN BED PLANTING SOIL'. TOP 300mm DEPTH.
AMELIORATE SUBSOIL: (BELOW 300mm AND TO BE >300mm DEPTH) TO MEET SOIL SPECIFICATION TYPE B2. ENSURE SUITABLE DRAINAGE.

SOIL AMELIORATION MAY BE POSSIBLE IN SOME EXISTING GARDEN BED LOCATIONS (TO BE DETERMINED AT DOCUMENTATION PHASE WITH SOIL INVESTIGATION).
ENSURE SOIL AROUND EXISTING TREES IS MAINTAINED AND CONDITIONED WITH MINIMAL IMPACT TO EXISTING TREE ROOT SYSTEM.

FOR ALL LANDSCAPE PLANTERS, INSTALL:
SOIL TYPE E1 ('A' HORIZON), TOP 300mm DEPTH, AND
SOIL TYPE E2: ('B' HORIZON), TO MAKE UP DEPTH OF PLANTER (TO BE DOCUMENTED) - ALLOW MINIMUM 500mm B HORIZON.

FOR ALL NEW TURF/LAWN ZONES, INSTALL:
SOIL TYPE C2: ACTIVE HIGH-TRAFFIC TURF (A WELL DRAINING TURF UNDERLAY)

THE SOIL SPECIFICATIONS ARE TO BE DOCUMENTED, CONFIRMED AND SIGNED OFF BY LANDSCAPE ARCHITECT AT DOCUMENTATION PHASE.

MULCH IS TO BE 75mm DEEP, EVENLY SPREAD TO ALL LANDSCAPE ZONES (REPLENISH MULCH TO EXISTING GARDEN BEDS AND NEW MULCH TO NEW AND UPGRADED LANDSCAPE ZONES) MULCH TO BE EQUIVALENT TO: ANL FOREST FINES.

PROPOSED ARCHITECTURAL SITE PLAN USED AS BASE UNDERLAY. THIS PLAN FORMS PART OF THE LANDSCAPE ARCHITECTURAL PACKAGE.

100 200 300 400 500 600 700 800

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 The Phoenix Studio 6, Level 1. 1 Moncur Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

NOT FOR CONSTRUCTION

Issue	Revision Description	Date
B	Development Application (updated and amended)	01.11.21
A	Development Application	14.10.21

LEGEND

Retain existing tree
Existing tree proposed for removal
Proposed tree.
Proposed dwarf tree
Proposed deciduous tree.
Proposed tall or screen shrubs
Accent Plants
Proposed shrubs
Retain existing garden bed and tree
Proposed spreading groundcovers.
New Lawn (roll, with turf underlay).
Proposed hardy sedges and forbes.
Proposed hardy hedge/ compact shrubs.
Proposed low shrubs <0.6m
Proposed border planting.
Semi shade tolerant under eave planting

TN MN

elke
LANDSCAPE CONSULTING ARCHITECT ARBORIST
0410 456 404
elke@elkeh.com.au

Development Application

Client: Home Consortium

Architect: Buchan

Landscape Architect and consulting arborist: Elke Landscape Architect + Consulting Arborist

Project: Glenmore Park Town Centre Upgrade
Glenmore Park. NSW

Drawing Name: Landscape Architectural Coversheet and Site Plan

This plan forms part of the consulting arboricultural package

Scale: 1: 200 @A1

Scale bar: 0 1 2 4 6 10m

Drawn: EDH

Approved: EDH

Job Number: 2109_b

Drawing Number: L_100

Issue: B

A1

Document Set ID: 9809818
Version: 1, Version Date: 16/11/2021

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS BEYOND THIS POINT.

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS PROPOSED BEYOND THIS POINT.

NATIVE EVERGREEN SCREEN PLANTING ON SOUTH SIDE OF BUILDING.
DA Plant species: Syzygium 'Pinnacle'.

RAISED PLANTER UNDER EAVES WITH IRRIGATION (AS SPECIFIED). SEMI SHADE TOLERANT PLANTING.
DA Plant species: Statement: Ficus lyrata and Cyathea or Raphis. Fern: Aspelnium and Blechnum. Lower plants: Liriope Isabella and Liriope 'Evergreen Giant' and Crassula. Groundcover: Viola hederaceae

DECIDUOUS SMALL TREE IN PLANTER WITH LOW UNDERSTOREY PLANTING AND REPEATED TO THE NORTH AS SHOWN.
DA Plant species: Tree Pyrus 'Chanticleer' or Nyssa sylvatica. Understorey: Rapheolepis hedged. Border: Dianella Cassa Blue.

HARDY LOW MASS PLANTED PLANTER
DA Plant species: Lomandra Katie Belles with Anigozanthos.

TIERED PLANTING BEHIND BALUSTRADE WITH TRAILING PLANTS TO FRONT EDGE. LOW HARDY PLANTING IN PLANTERS ON BLEACHER STEPS.
DA Plant species: Rapheolepis. Groundcover at front edge: Myoporum or Osteospermum.
Low hardy planting: Hardenbergia Bushy Blue or Thryptomene and Grevillea prostrate 'Bronze Rambler' or 'Gold Cluster' in lower planter.

BUILDING 1

OFFICE SPACE: 2454 m2 (INCLUDING AMENITIES)

SECURE CAR PARKS - 13

RL 48535

ENTRY

LIFT

STAIRS

SHOPFRONT ZONE FOR EXISITING TENANCIES

WALKWAY ZONE

TERRACE DINING PRECINCT

DINING AREA

STEPS

RL 48500

RL 45670

RL 46350

1:100 min

RAMP

ON GRADE WALKWAY (CONCRETE FINISH)

EXISTING CARPARKS

SITE CONTINUES. REFER TO LANDSCAPE PLAN L_102.

UNDERCOVER PLANTERS AT ENTRY. SHADE TOLERANT PLANTS (WITH IRRIGATION AS SPECIFIED).
DA Plant species: Crinum with Crassula or Spathyphyllum. Groundcover of Viola hederaceae.

NEW ACCESSIBLE PARKING BAYS WITH SHARED ZONE

MASS PLANTED, HARDY ACCENT PLANTING WITH GROUNDCOVERS.
DA Plant species: Accent: Doryanthes. smaller hardy plants: Anigozanthos or Kniphofia. Border: Dianella and Hardenbergia Bushy Blue.

NEW PEDESTRIAN CROSSING

TALL, SLENDER LOCALLY NATIVE TREE TO PROVIDE MARKER AT CROSSING AND LOCAL CHARACTER SETTING. HARDY ACCENT PLANTS TO DEFINE CAR PARKING ZONE.
DA Plant species: Tree Eucalyptus microcorys, punctata or sideroxylon. Accent: Doryanthes and Anigozanthos cvs. Understorey planting: Lomandra Tanika to edges.

NEW ACCESSIBLE PARKING BAYS WITH SHARED ZONE

TOWN TERRACE

EXISTING RETAINED ROAD

EXISTING CARPARKS

TN MN

PROPOSED ARCHITECTURAL SITE PLAN USED AS BASE UNDERLAY. THIS PLAN FORMS PART OF THE LANDSCAPE ARCHITECTURALPACKAGE.

100 200 300 400 500 600 700 800

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 The Phoenix Studio 6, Level 1. 1 Moncur Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

NOT FOR CONSTRUCTION

Issue	Description	Date
B	Development Application (updated and amended)	01.11.21
A	Development Application	14.10.21

LEGEND

- Retain existing tree
- Existing tree proposed for removal
- Proposed tree.
- Proposed dwarf tree
- Proposed deciduous tree.
- Proposed tall or screen shrubs
- Accent Plants
- Proposed shrubs
- Retain existing garden bed and tree
- Proposed spreading groundcovers.
- New Lawn (roll, with turf underlay).
- Proposed hardy sedges and forbes.
- Proposed hardy hedge/ compact shrubs.
- Proposed low shrubs <0.6m
- Proposed border plants
- Semi shade tolerant under eave planting

elke LANDSCAPE CONSULTING ARCHITECT ARBORIST
0410 456 404
elke@elkeh.com.au

Development Application

Client: Home Consortium

Architect: Buchan

Landscape Architect and consulting arborist: Elke Landscape Architect + Consulting Arborist

Project: Glenmore Park Town Centre Upgrade
Glenmore Park. NSW

Drawing Name: Landscape Architectural
Southern Zone

This plan forms part of the landscape architecutral DA package

Scale: 1: 100 @A1

Scale bar: 0 1 2 3 4 5m

Drawn: EDH

Approved: EDH

Job Number: 2109_b

Drawing Number: L_101

Issue: B

A1

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS PROPOSED BEYOND THIS POINT.

DECIDUOUS SMALL TREE IN PLANTER WITH LOW UNDERSTOREY PLANTING AND REPEATED TO THE NORTH AS SHOWN.
DA Plant species: Tree Pyrus 'Chanticleer' or Nyssa sylvatica. Understorey: Rapheolepis hedged. Border: Dianella Cassa Blue.

HARDY LOW MASS PLANTED PLANTER
DA Plant species: Lomandra Katie Belles with Anigozanthos.

TIERED PLANTING BEHIND BALUSTRADE WITH TRAILING PLANTS TO FRONT EDGE. LOW HARDY PLANTING IN PLANTERS ON BLEACHER STEPS.
DA Plant species: Rapheolepis. Groundcover at front edge: Myoporum or Osteospermum.
Low hardy planting: Hardenbergia Bushy Blue or Thryptomene and Grevillea prostrate 'Bronze Rambler' or 'Gold Cluster' in lower planter.

3 x PROPOSED DWARF FLOWERING TREES AND 1 x DECIDUOUS TREE, ALL CROWN LIFTED TO ALLOW SIGHTLINES. LOW HARDY PLANTS TO BASE.
DA Plant species: Pyrus 'Chanticleer' or Nyssa. Dwarf Corymbia ficifolia, or Tibouchina. Understorey low growing plants: Hardenbertia Bushy Blue and Anigozanthos with Lomandra Katie Belles.

FEATURE DECIDUOUS TREE WITH LOW, HARDYSHRUBS TO TERRACES TO PROVIDE SOFT/VEGETATED APPEARANCE.
DA Plant species: Tree: Clerodendron. Smaller trees: Tibouchina or Corymbia ficifolia. Shrubs: Grevillea cvs, Correa. Low plants: Myoporum. Border: Dianella and Osteospermum.

2 x DECIDUOUS SMALL TREES IN PLANTERS EITHER SIDE OF STAIRS IN SAME SPECIES AS TERRACED ZONES FOR VISUAL CONNECTIVITY/COHESIVENESS. LOW UNDERSTOREY PLANTING.
DA Plant species: Tree Pyrus 'Chanticleer' or Nyssa sylvatica. Understorey: Rapheolepis hedged. Border : Osteospermum or Myoporum.

SHOPFRONT ZONE FOR EXISITING TENANCIES
WALKWAY ZONE
TERRACE DINING PRECINCT
DINING AREA
STEPS
2000
STAIRS
RL 48500
BUILDING 2
NEW TENANCY: 250m2
RL 47339
RL 48500
DINING AREA
ON GRADE WALKWAY (CONCRETE FINISH)
EXISTING CARPARKS
RL 46350
STAIRS
1:100 min
LAWN
PATH
PATH
PATH
LAWN
LAWN
LAWN
RAMP1:20
RAMP1:20
PATH
TALL, SLENDER LOCALLY NATIVE TREE TO PROVIDE MARKER AT CROSSING AND LOCAL CHARACTER SETTING. HARDY ACCENT PLANTS TO DEFINE CAR PARKING ZONE.
DA Plant species: Tree Eucalyptus microcorys, punctata or sideroxylon. Accent: Doryanthes and Anigozanthos cvs. Understorey planting: Lomandra Tanika to edges.
NEW ACCESSIBLE PARKING BAYS WITH SHARED ZONE
EXISTING SPEED BUMP
TN
MN
EXISTING CARPARKS
PROPOSED ARCHITECTURAL SITE PLAN USED AS BASE UNDERLAY. THIS PLAN FORMS PART OF THE LANDSCAPE ARCHITECTURAL PACKAGE.
100 200 300 400 500 600 700 800

SITE CONTINUES. REFER TO LANDSCAPE PLAN L_102.

SITE CONTINUES. REFER TO LANDSCAPE PLAN L_103.

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 The Phoenix Studio 6, Level 1. 1 Moncur Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown must be referred to the Landscape Architect for confirmation. The Contractor must not construct from this drawing unless it marked 'Issue for Construction'. The Contractor acknowledges this drawing may be one of a number of drawings which together document the landscape design and works.

NOT FOR CONSTRUCTION

Issue	Revision Description	Date
B	Development Application (updated and amended)	01.11.21
A	Development Application	14.10.21

LEGEND

- Retain existing tree
- Existing tree proposed for removal
- Proposed tree.
- Proposed dwarf tree
- Proposed deciduous tree.
- Proposed tall or screen shrubs
- Accent Plants
- Proposed shrubs
- Retain existing garden bed and tree
- Proposed spreading groundcovers.
- New Lawn (roll, with turf underlay).
- Proposed hardy sedges and forbes.
- Proposed hardy hedge/ compact shrubs.
- Proposed low shrubs <0.6m
- Proposed border plants
- Semi shade tolerant under eave planting

elke LANDSCAPE CONSULTING ARCHITECT ARBORIST
0410 456 404
elke@elkeh.com.au

Development Application

Client: Home Consortium

Architect: Buchan

Landscape Architect and consulting arborist: Elke Landscape Architect + Consulting Arborist

Project: Glenmore Park Town Centre Upgrade
Glenmore Park. NSW

Drawing Name: Landscape Architectural Middle Terraces Zone

This plan forms part of the landscape architectural DA package

Scale: 1: 100 @A1

Scale bar: 0 1 2 3 4 5m

Drawn: EDH

Approved: EDH

Job Number: 2109_b

Drawing Number: L_102

Issue: B

A1

SITE CONTINUES. REFER TO PLAN L_102

SITE CONTINUES. REFER TO LANDSCAPE PLAN L_102.

SITE CONTINUES. REFER TO LANDSCAPE PLAN L_103..

BUILDING 2

NEW TENANCY: 250m2

RL 47339

RL 48500

RL 46350

DINING AREA

STAIRS

2000

1:100 min

EXISTING SPEED BUMP

LAWN

PATH

RAMP1:20

45.80

TREES TO SEPERATE UPPER AND LOWER TERRACE AREAS. HARDY PLANTS IN NORTH FACING PLANTERS TO SOFTEN WALL.
DA Plant species: Trees: Corymbia ficifolia or Gleditsia Sunburst. Accents: Doryanthes and Kniphofia. Shrubs: Grevillea cvs, Correa. Low plants: Myoporum. Border: Dianella and osteospermum.

450mm WIDE PLANTER WITH HARDY PLANTS TOLERANT OF HIGH HEAT REFLECTIVITY AND TO PROVIDE SOME SOFTENING TO THE WALL.
DA Plant species: Correa alba or Acacia binervia.

GRADUAL EMBANKMENT TO LAWN (APPROX. 1:8) FOR AMENITY AND USEABILITY. BORDER PLANTS AT BASE OF WALL FOR MAINTENANCE (MOWING) AND SOFTENING.
DA Plant species: Liriope Just Right

NEW LANDSCAPE TERRACES. UPPER TERRACE WITH LOW, HARDY GROUNDCOVERS FOR CLEAR SIGHTLINES.
MID AND LOWER TERRACES WITH APPROX 0.5-0.7m HIGH HARDY SHRUBS TO MEET TOP OF ADJACENT TERRACE WALLS. DWARF FLOWERING TREES TO UNIFY SPACE.
DA Plant species: Groundcover: dwarf Banksia 'Birthday Candles' and/or Myoporum. Shrubs: Rapheolepis indica, Melaleuca thymifolia. Border: Osteospermum.

RETAIN EXISTING FICUS TREE AND GARDEN BED THAT IT IS CONTAINED WITHIN. RETAIN EXISTING LEVELS WITH OPPORTUNITY FOR MINIMIAL SOIL IMPROVEMENTS TO BE DOCUMENTED.

CANOPY EXTENT OF TREE

REGRADE AND REFRESH LAWN ZONES WITH TOPDRESSING AND OVERSOWING. MAINTAIN AND ESTABLISH.

RETAIN EXISTING TREES AND GARDEN BEDS WITH VERY MINIMAL SOIL IMPROVEMENTS AS DOCUMENTED WITH AND NATIVE SEDGES. (REFER ARBORIST REPORT).
DA Plant species: Understorey native sedges: Lomandra Katie Belles and Correa alba or Leptospermum Mesmer Eyes

SLENDER NATIVE TREES TO DELINEATE AND VEGETATE CORNER WHILST ALLOWING VISUAL SIGHTLINES THROUGH UNDER CANOPY AND TO PROVIDE DAPPLED SHADE TO PEDESTRIAN ZONES FOR AMENITY. UNDERSTOREY HARDY PLANTS.
DA Plant species: Trees Eucalyptus microcorys, crebra, and tereticornis. Understorey: Correa alba with Lomandra Nyalla at edges with Thryptomene under trees. Accent: Doryanthes. Screen: Kunzea, and Grevillea (by ramps)

TN MN

PROPOSED ARCHITECTURAL SITE PLAN USED AS BASE UNDERLAY. THIS PLAN FORMS PART OF THE LANDSCAPE ARCHITECTURALPACKAGE.

100 200 300 400 500 600 700 800

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 The Phoenix Studio 6, Level 1. 1 Moncur Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

NOT FOR CONSTRUCTION

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B	Development Application (updated and amended)	01.11.21
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LEGEND

- Retain existing tree
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- Proposed dwarf tree
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- Proposed tall or screen shrubs
- Accent Plants
- Proposed shrubs
- Retain existing garden bed and tree
- Proposed spreading groundcovers.
- New Lawn (roll, with turf underlay).
- Proposed hardy sedges and forbes.
- Proposed hardy hedge/ compact shrubs.
- Proposed low shrubs <0.6m
- Proposed border plants
- Semi shade tolerant under eave planting

elke LANDSCAPE CONSULTING ARCHITECT ARBORIST
0410 456 404
elke@elkeh.com.au

Development Application

Client: Home Consortium

Architect: Buchan

Landscape Architect and consulting arborist: Elke Landscape Architect + Consulting Arborist

Project: Glenmore Park Town Centre Upgrade
Glenmore Park. NSW

Drawing Name: Landscape Architectural
Northern Lawn Zone

This plan forms part of the landscape architecutral DA package

Scale: 1: 100 @A1

Scale bar: 0 1 2 3 4 5m

Drawn: EDH

Approved: EDH

Job Number: 2109_b

Drawing Number: L_103

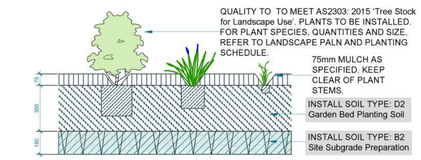
Issue: B

A1

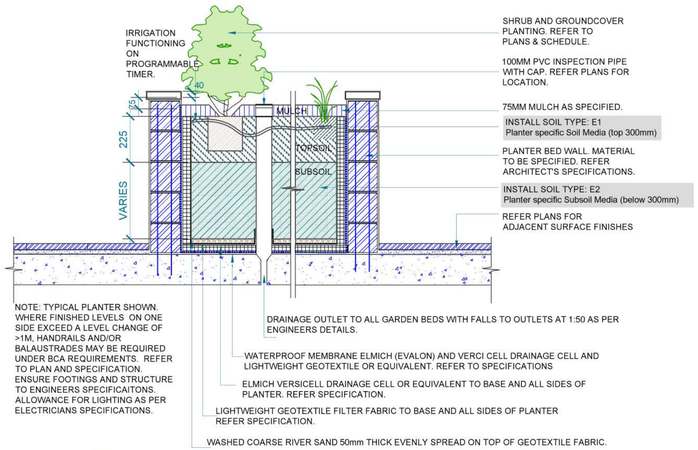
PROJECT: Glenmore Park Town Centre Upgrade. NSW. DA Landscape Notes:

- ALL TREES AND PLANTS ARE TO MEET AS2303-2018 TREE STOCK FOR LANDSCAPE USE.
- ALL PLANTED ZONES AND PLANTERS UNDER EAVES OR UNDERCOVER ARE TO HAVE ABOVE GROUND OR IRRIGATION INSTALLED ON PROGRAMMABLE TIMERS. ALL OTHER LANDSCAPE PLANTED ZONES AND GARDEN BEDS ON ALL EXISTING AND ALL NEW LANDSCAPE ZONES WITHIN THE SCOPE OF WORKS ARE TO HAVE SUB SURFACE DRIP IRRIGATION INSTALLED ON PROGRAMMABLE TIMERS.
- LAWN/TURF AREAS ARE PROPOSED TO HAVE POP UP SPRINKLERS, COMMERCIAL GRADE ON PROGRAMMABLE TIMERS.
  IF APPLICABLE, CONNECT IRRIGATION TO RAINWATER SYSTEM (AS APPLICABLE) WITH MAINS BACKUP.
- CONCEAL IRRIGATION PROGRAMMABLE BOXES (IN GROUND). PROVIDE SEPERATE TAP HEADS FOR MAINTENANCE). TAP HEADS TO EITHER BE CONCEALED IN IRRIGATION BOX OR WITH REMOVABLE HEADS (TO MINIMISE UNAUTHORISED USE).

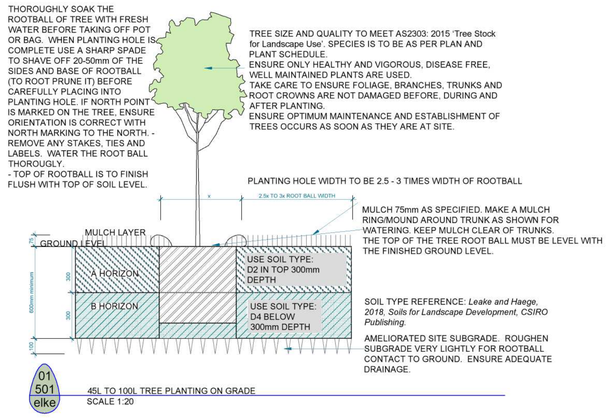
- MAINTAIN AND ESTABLISH ALL EXISTING AND NEW LANDSCAPE, SOIL, MULCH, PLANTING AND LAWNS FOR 12 MONTHS FROM PRACTICAL COMPLETION SIGN OFF BY PROJECT LANDSCAPE ARCHITECT - DEVELOP ONGOING LANDSCAPE MAINTENANCE AND MANAGEMENT REPORT. ONGOING LANDSCAPE MAINTENANCE IS REQUIRED.
- FINAL PLANT SPECIES, LAYOUT AND LOCATIONS TO BE DOCUMENTED BY PROJECT LANDSCAPE ARCHITECT (FOLLOWING COUNCIL APPROVAL).
- RETAIN AND PROTECT EXISTING TREES (SHOWN TO BE RETAINED) DURING CONSTRUCTION. REPLACE TREES WITH 200L POT SIZE REPLACEMENTS IF DAMAGED/IMPACTED DURING UPGRADE CONSTRUCTION AND MAINTENANCE PHASES. REFER ARBORIST REPORT FOR TREE PROTECTION MEASURES AND SIGN OFFS.



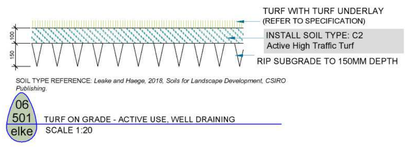
03 501 elke SHRUB, GRASS & GROUNDCOVERS ON GRADE
SCALE 1:20



07 502 elke RAISED BLOCK PLANTER - TYPICAL SECTION
SCALE 1:20



01 501 elke 45L TO 100L TREE PLANTING ON GRADE
SCALE 1:20



06 501 elke TURF ON GRADE - ACTIVE USE, WELL DRAINING
SCALE 1:20

PROJECT: Glenmore Park Town Centre Upgrade. NSW. DA Landscape Notes.

- Above ground, inbuilt Balcony Planters:
- Irrigation to the inbuilt planters is to be via an on-surface irrigation system that is on a programmable timer. Program the irrigation to allow for minimal but adequate water usage, suitable overall soil coverage and minimal water wastage and within the guidelines of current water restrictions.

The irrigation programmer is to be visually concealed (e.g. programmable timers within garden bed boxes or at tap outlet with visually unobtrusive pipework (kept under the mulch), fixture heads can sit proud to allow watering / soil coverage.

- Connect garden irrigation and hoses to the rainwater collection system (if applicable).
- The inbuilt planters (per the detail) are to have waterproofing (per engineering specifications) on base and side walls and where on grade, are to be connected to the underlying soil (not sealed in the base of the planter). Waterproofing: Use a heavy-duty HDPE waterproof liner capable of being glued onto the inside of the planter wall and cover the full extent (full height of the mulch level) – per the project engineers specifications. Mulch level to planters is to finish 10mm below top of planter (mulch 75mm thick).
- If planters are on podium or non-draining base material, allow falls at base of planter to be 1:40 with drainage cell such as Atlantis or Verticell from Elmich drainage on base and up the sides of the planter for half a metre. Drain at the bottom of the planter (50mm of base) to connect into stormwater system (to engineer's design).

- Garden lighting: Allow for 12V LED garden lighting connection to all planters. Commercial grade lighting fixtures and final locations to be detailed at documentation phase.

- All planted zones: Allow for double hose cocks and a separate hose connection (for supplementary hand watering/maintenance) to be able to reach each planter and garden bed/planted zone (e.g. allow 15m radius from hose connection).
-

Soil types There are three main types of soil being for a) on grade garden beds, b) for all planters, and c) for all lawn/turf zones.
The Soil type and mulch type reference: refer to specification/details sheets L_501 and L_100.

Elke Haege Landscape Architect and Consulting Arborist AQF5.

Planting Schedule for DA
Project: Glenmore Park Town Centre. Upgrades
Client: Home Consortium
Project Reference number: 2109_b
Revision: A
Elke Haege Landscape Architect
14th Oct 2021

Symbol	Botanic Name	Common Name	Size in Context 15 - 20 yrs (height x width) (m)	Installation Pot Size (min)	Native, Native cv. Or exotic	Density (lm=linear metres) or units in m2	Plant form
	Proposed Trees						
Clecap	*Clerodendrum capense*	Cape Chestnut	6 x 3	75L	Exotic	as shown	tree
Eucrre	*Eucalyptus crebra*	Narrow leafed Ironbark	10 x 3	45L	Native	as shown	tree
Eucmic	*Eucalyptus microcorys*	Tallowood	11 x 4	45L	Native	as shown	tree
Eucpun	*Eucalyptus punctata*	Grey Gum	12 x 4	200mm	Native	as shown	tree
Eucsid	*Eucalyptus sideroxylon 'Fawcetts Pink'*	Mugga Ironbark	18 x 5	200mm	Native cv.	as shown	tree
Euctere	*Eucalyptus tereticornis*	Forest red gum	10 x 4	45L	Native	as shown	tree
Nyssyl	*Nyssa sylvatica*	Black Tulepo	8 x 4	25L	exotic	as shown	tree
PycalIC	*Pyrus calleryana 'Chanticleer'*	ornamental pear	6 x 4	100L	exotic	as shown	tree
	Proposed Small Trees						
Corfic	*Corymbia ficifolia*	Red flowering gum	6 x 3	45L	Native	as shown	tree
GletriS	*Gleditsia tricanthos ' Sunburst'*	Gleditsia Honey Locust	4 x 2	45L	exotic	as shown	tree
Tibgra	*Tibouchina granulosa*	Tibouchina tree	4 x 3	45L	exotic	as shown	tree
	Proposed Larger Native Screen Shrubs						
SyzausP	*Syzygium australis 'Pinnacle'*	Lilly Pilly -for shade	3.5 x 1.5 hedged	200mm	Native cv.	as shown	screen
	Proposed Shrubs 0.6m-1m						
LME	*Leptospermum 'Mesmer Eyes'*	PinkWhite Tea tree	0.7 x 0.8	140mm	Native cv.	*as shown*	shrub
RaAB	*Rapheolepis 'Apple Blossom'*	Apple blossom Indian Hawthorn	0.7 x 0.5	140mm	exotic	as shown	shrub
MelthyPL	*Melaleuca thymifolia 'Little Beauty'*	Thyme Honey-myrtle	0.7 x 0.8	140mm	Native cv.	*3.5/m2*	shrub
ThrysaxP	*Thryptomene saxicola Paynes hybrid*	Thryptomene	0.6 x 0.4	140mm	Native cv.	3/m2	shrub
	Low Shrubs and Plants < 0.5m high		**Hedged height**				
Coralb	*Correa alba*	Correa	0.4 x 0.4	140mm	Native	as shown	low shrub
HarvioBB	*Hardenbergia violaceae 'Bushy Blue'*	compact hardenbergia purple	0.4 x 0.5	140mm	Native	4.5 /m2	shrub
	Proposed Statement Native Plants (full sun)						
Aloecv	*Aloe cvs*	Aloe cultivars	0.3 x 0.3	140mm	exotic	as shown	accent
AniflaLO	*Angiozanthos flavidus 'Landscape Orange,*	*Tangerine or Lime' Tall & Tough*	0.6 x 0.5	140mm	Native cv.	1.3/lm	perennial
AniflaLS	*Angiozanthos flavidus 'Landscape Scarlet'*	*Tall & Tough Kangaroo Paw*	0.6 x 0.5	140mm	Native cv.	1.3/lm	perennial
Dorexc	*Doryanthes excelsior*	Gymea Lilly	to 3 x 1.5	300mm	Native	as shown	accent
Kniova	*Kniphofia uvaria 'Maid of Orleans'*	Red Hot Poker	0.4 x 0.4	140mm	exotic	as shown	accent
	Proposed shade tolerant plants (under eaves / undercover)						
Aspaus	*Asplenium australasicum*	Birdsnest fern	0.8 x 0.8	300mm	Native	as shown	fern
BleSL	*Blechnum Silver Lady*	silver lady fern	0.6 x 0.4	200mm	Native	as shown	fern
Craova	*Crassula ovata*	Large leaf Jade	0.4 x 0.4	150mm	exotic	as shown	succulent
Criped	*Crinum pedunculatum*	Swamp Lilly	0.8 x 0.8	150mm	Native	as shown	rhizome
Cyaaus	*Cyathea australis*	Rough Tree fern	3-6 x 1	300mm / 1m	Native	as shown	fern
Ficlyr	*Ficus lyrata*	Fiddle leaf fig	2 x 1	200mm	exotic	as shown	fig
LmusEG	*Liriope muscari 'Evergreen Giant'*	purple lilly liriope	0.4 x 0.4	140mm	exotic	2.5/lm	sedge
Rapexc	*Raphis excelsa*	Raphis palm	1.4 x 0.8	200mm	exotic	as shown	palm
SpaSen	*Spathyphylum Sensation*	Peace Lily	0.4 x 0.4	150mm	exotic	as shown	low plant
Viohed	*Viola hederaceae*	Native violet	groundcover	tube	Native	5/m2	groundcover
	Proposed groundcover / spreading plants						
OstVS	*Osteospermum 'Vanilla Spoon' or 'Spider White' - cut leaf daisy*		0.3 x 0.5	140mm	exotic	4.5 /m2	groundcover
Myopar	*Myoporum parvifolium*	Creeping boobiala	0.2 x 1	140mm	native	3/m2	groundcover
	Border Plants and strappy leaf sedges		**Hedged height**				
Diacae	*Dianella caerulea 'Cassa Blue'*	Blue flax lily	0.8 x 0.6	140mm	Native cv.	3.5/lm	sedge
LirmusI	*Liriope muscari 'Isabella'*	border (mondo like + shade)	0.3 x 0.3	140mm	Native	4/lm	border
LirmusJR	*Liriope muscari Just Right*	Liriope	0.4 x 0.4	150mm	Native cv.	3/lm	border
LomhysKB	*Lomandra hystrix 'Katie Belles'*	Katie Belles	0.8 x 0.6	140mm	Native cv.	2.5/lm	sedge
LomlonKD	*Lomandra longifolia 'Katrinus Deluxe'*	Lomandra Katrinus	0.5 x 0.6	150mm	Native cv.	1.5/lm	sedge
LomlonN	*Lomandra longifolia Nyalla*	Fine leaf Lomandra Nyalla	0.8 x 0.6	140mm	Native	3/lm 1.5/m2	sedge
LomlonT	*Lomandra longifolia 'Tanika'*	Matting Lomandra	1.1 x 1.1	150mm	Native	1/lm	sedge
	Turf						
Lawn	*Matilda Premium Buffalo*	Roll turf lawn with turf underlay (soil type C2 - see details) and topdressed					

Note:
Plant species have been selected with regard to the local soils and environmental and climatic conditions
Plant species on rooftop, slab or with reduced soil volumes or below optimum maintenance will not necessarily reach the mature heights as shown.
Soil specifications outlined by the landscape architect must be followed by the landscape contractor. Only install with 'for construction' issue landscape architectural package.

Contact the landscape architect if species unavailability for co-ordination of pot sizing or species substitution in line with design intent. (Order plants well in advance to optimize availability). Note: change in species may require council reassessment

elke@elkeh.com.au
0410 456 404

100 200 300 400 500 600 700 800

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 The Phoenix Studio 6, Level 1. 1 Moncur Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

NOT FOR CONSTRUCTION

Issue	Revision Description	Date
A	Development Application	14.10.21

LEGEND

elke LANDSCAPE CONSULTING ARCHITECT ARBORIST
0410 456 404
elke@elkeh.com.au

Development Application

Client: Home Consortium

Architect: Buchan
Landscape Architect and consulting arborist: Elke Landscape Architect + Consulting Arborist

Project: Glenmore Park Town Centre Upgrade
Glenmore Park. NSW

Drawing Name: Landscape Architectural DA Details and Planting Schedule

This plan forms part of the consulting arboricultural package

Scale: 1: 200 @A1

Scale bar: 0 1 2 4 6 10m

Drawn: EDH
Approved: EDH

Job Number: 2109_b
Drawing Number: L_501
Issue: A

A1

REVISION: A

PROJECT ADDRESS:

1 Town Terrace, Glenmore Park Town Centre, Glenmore Park, NSW 2745
Consulting Arboricultural Assessment Report for DA.

elke LANDSCAPE ARCHITECT
elke ARBORIST
elke SOILS

PURPOSE:

This arboricultural assessment report package for development application covers a total of fifteen trees. The retention and protection of five (5) trees is proposed, the removal of ten (10) trees is proposed.

This assessment describes the proposal in relation to trees, tree impact and recommended tree protection measures in reference to the proposed development application proposal. The arborist assessment has been conducted and reported in relation to The *Penrith City Council Development Control Plan – Part C2 Vegetation Management*[1].

This arborist assessment and written report includes a summary table of the tree assessment data, arborist retention plan and arborist impact plan. The trees and their context were assessed on 14th September 2021, by Elke Haege Thorvaldson, *AQF Level 5 consulting arborist.*

PROJECT TEAM:
Client: *Home Consortium Pty Ltd*
Architect: *Buchan Group*

Consulting arborist AQF Level 5: *Elke Haege Thorvaldson*

The information contained in this assessment report is considered accurate at the time of tree inspection. The condition of the trees and site conditions may change over time.

Elke Haege Thorvaldson
elke Landscape Architect + Consulting Arborist.
m 0410 456 404

The Phoenix Studio 6.
1 Moncur St, Woollahra, NSW 2025
ABN:32828038804
elke@elkeh.com.au
www.elkeh.com.au

ASSESSMENT AND REPORT PREPARED BY: Elke Haege Thorvaldson

Elke Landscape Architect + Consulting Arborist
B. LArch (Hons) (UNSW) Registered Landscape Architect AILA (#001539)
Dip. (Horticulture) Arboriculture AQF Level 5.

[1] https://www.penrithcity.nsw.gov.au/images/c2_vegetation_management.pdf

Contents

1 Abstract/ Summary

1.1 This arboricultural assessment report package for development application covers a total of fifteen trees.

1.2 The retention and protection of five (5) trees is proposed. Of the trees proposed to be retained and protected, two trees (T1 and T2) have been assessed as having a high retention rating and one tree (T3) with a medium retention rating. The development is proposal outside of the existing garden bed zones of trees T1, T2, and T3 and does not impact upon the garden bed zones of these trees proposed for retention.

1.3 The removal of ten (10) trees is proposed. These trees are all Fraxinus americana (White Ash) trees and fall into the exempt category in that they are under the height and size description of a prescribed tree *(Penrith Development Control Plan 2014, C2, 2.a) iii).* Further, the trees proposed to be removed are exotic species.

1.4 The landscape proposal includes for the establishment of 3 new additional large native trees and 11 new additional flowering trees.

1.5 The arborist *Table A* (data sheets) and *Chapter 6* in this report provides further information and discussion around the proposed tree removal.

1.6 Table A outlines the trees' condition and calculations. Refer to *Table A: Tree Schedule*

1.7 Refer also to the arborist plans *Arb_601 and Arb_602.* within this report.

2 Introduction

2.1 Elke Haege visually assessed and inspected the trees from ground level on 14th September 2021. The Visual Tree Assessment Method was used *(after Mattheck 8.4 p 118, fig. 74).*

2.2 Soil/ Geology/The site: The existing site is a currently operating shopping centre village. There are two prominent trees being T1 and T2. The *Eucalyptus sideroxylon* (Mugga Ironbark) (T2) provides typical, locally distinctive vegetation characteristics and suited to the natural soil geology, which would have been compacted, high clay content and dry soil conditions.

2.3 The proposed development area addresses the eastern aspect facing on to an open-air car park and beyond a playing filed/park (Ched Towns Reserve).

2.4 The prominent Moreton Bay Fig (T1), whilst native is not local to the area, notwithstanding, it does provide a central focus and axis to the retail site. There are pavement / hard paved zones predominantly around the remainder of the proposed development area.

2.5 To note, existing stormwater pipe and inlet pit runs near and beneath T2, and it is understood this existing pipe is to remain.

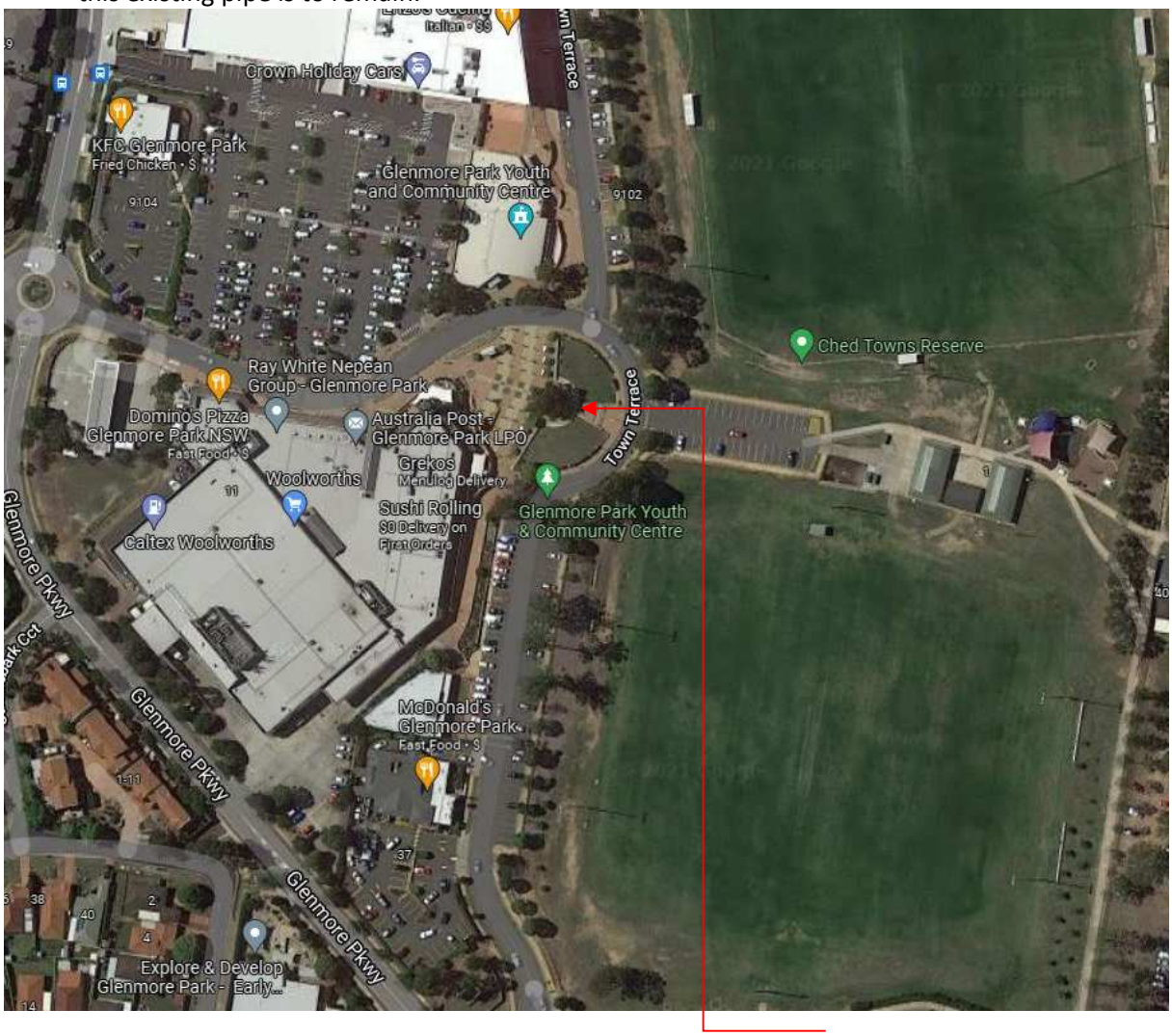


Figure 1 *Contextual Site Plan – Glenmore Park Town Centre Upgrade Project. The red arrow indicates T1. Source: Google Maps. Accessed: 15th October 2021*

3 Assessment Methodology

The following industry accepted, and recognised methodologies have been used to visually assess the health and condition of the tree. Results are shown in *Table A*.

SUMMARY OUTLINE OF TREE ASSESSMENT METHODOLOGIES			
Refer to:	Category of Assessment	Methodology Name + description	Sources
Table A **Arb_601**	Visual Tree Assessment (VTA). On site measurements and calculations	Visual Tree Assessment (VTA) Procedure and strategy. Refer to Table A[2]	*Claus Mattheck and Breloer 2006. And David Lonsdale's Tree Assessment Strategy.*
Table A	Landscape Significance Rating	Determining Landscape Significance Rating	*Developed from: Earthscape Horticultural Services, December 2011*
Table A	SULE	Safe Useful Life Expectancy Procedure	*Jeremy Barrell 1996 from BS5837*
Arb_601 **Table A**	Retention Value	Determining Retention Value	*Developed from: Earthscape Horticultural Services, December 2011*[3]
Arb_601 **Table A**	Tree Protection Zones	Tree Protection Zones (TPZ's) and Structural Root Zones (SRZ's)	*AS 4970, Protection of Trees on Development Sites.*
Table A	Tree Retention Priorities	Analysing the implications for Proposed Development	*Earthscape Horticultural Services, December 2011*
	Australian Standards AS4790-2009	Protection of Trees on Development Sites. Determining permissible tree protection zones, encroachments, protection, fencing, incursions, terminology, and recommendations	*AS 4790-2009*

1. Table above outlines the Methodologies used.

Australian Standards and Data Collection Documents

3.1 The Australian Standard, *AS 4790-2009 'Protection of Trees on Development Sites* has been used as the guiding standard reference to provide recommendations of the assessed trees.

3.2 The Australian Standard, *AS 4373-2007 'Pruning of Amenity Trees'* has also been referred to in this assessment within the recommendations section.

2 Claus Mattheck and Helge Breloer. Visual Tree Assessment *and David Lonsdale's* Tree Assessment Strategy.

3 Modified from: Couston, Mark and Howden, Melanie, 2001, Tree Retention Values table*, Footprint Green Pty., Ltd., Sydney, Australia.*

Not Assessed:

3.3 A visual tree assessment inspection from ground only was conducted. No invasive or destructive testing was conducted. Any changes to the proposed works will likely need tree re-assessment.

Reviewed:

3.4 The The *Penrith City Council Development Control Plan – Part C2 Vegetation Management*[4]. has been reviewed in the formulation of this assessment.

3.5 A draft of the stormwater general arrangement plan C100, by *Henry and Hymas*, Civil Engineering consultants has been viewed and it is understood that no new stormwater pits or pipes are within the tree protection zones (TPZ's) of the trees proposed to be retained, being T1, T2, and T13 and T15.

3.6 The landscape architectural plans and package has been co-ordinated in respect of the tree assessment and have both been put together by *Elke Landscape architect + consulting arborist*. The proposed landscape architectural DA package plans have been referred to in this assessment report.

---

4 Tree Data.

Refer to the *Table A Schedule* on the following page for the tree condition description and tree data. Provided on the next pages in this report is the following schedule:

a. *Table A: Tree Schedule – A3 size, 1 sheet.*
   Provides tree reference number, detail on health and structure, SULE rating, landscape, and retention rating, SRZ's, TPZ's[5] and relevant encroachment percentages.

Refer also to the '*Recommendations + Discussion'* chapter in this report.

---

5 Tree Assessment Plans:

b. *Arborist Plans have been created on A1 sized sheets at 1:200 scale:*
   i. *Arb 601: Tree Retention Plan.*
   ii. *Arb_602: Tree Impact Plan.*

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[4] https://www.penrithcity.nsw.gov.au/images/c2_vegetation_management.pdf

[5] *TPZ and SRZ's are calculated using AS4970-2009 (adapted from Matheney and Clarke's British Standard adaption method, 1991).*

Reference			(m)	(m)	AREA (m)								Refer to Appendix 4a and 4b				Refer to report.	
Id #	*Species,* Common Name	Age class	Estimated Height (m)	Trunk Diameter 1.4m DBH	Proposal to: retain and protect or remove	Canopy spread (m) N	E	S	W	Diameter above root crown (RCB)	Health and Structural Condition	SULE (Appendix 2)	Landscape Rating (Appendix 1)	Retention Rating (Appendix 5)	Site Location	TPZ (m) Radius	TPZ (m2) Area	SRZ Radius (m)	SRZ (m2) Area zone	% TPZ Encroachment	% SRZ encroachment
1	*Ficus macrophylla* Moreton Bay Fig.	SM	17	0.75	Retain and Protect	7	7	7	7	0.8	Contained in low wall and paving surrounding circular garden bed. Above ground canopy and structure appears healthy. Surface root buttressing prominent and a feature (typical for species). Tree has tendency to grow very large and may outgrow the constrained space provided to the detriment of adjacent hard surfaces. Tree form is visually good with single leader and good foliage cover.	L	H	H 2	P, HV	9.00	254.47	3.01	28.53	0%	0%
2	*Eucalyptus sideroxylon* Mugga ironbark	M	16	0.54	Retain and Protect	7	7	6	4.5	0.96	Co-dominant form from ground. Surface rooting visible to the SW within garden bed. Some cracking to concrete of the pram ramp adjacent which is towards the STW inlet. One torn limb on the NE side. Very hardy tree as demonstrated in hostile growing conditions. Overall T2 is a feature, prominent specimen providing shade. Visually appears to have poor, dry and limited soil availability despite hardiness of species.	M - L	H	H 2	P, HV	6.48	131.92	3.25	33.25	0%	0%
3	*Lophostemon confertus* Brush Box	SM	8.5	0.23	Retain and Protect	3.5	3.5	3.5	3.5	0.38	Single/dominant leader. Overall appearance is lacklustre and stunted. This is suspected due to dry and poor and constrained underground growing conditions. Exposed roots visible with possible eroded or compacted soil within garden bed.	M-L	M	M 3	HV.	2.76	23.93	2.20	15.26	0%	0%
4	*Fracinus americana* White Ash	SM	5.5	0.18	Proposal to Remove.	3.4	3.4	3.4	3.4	0.35	Stout form, almost shrub like with multiple branches at 1.4m. Good foliage coverage. Localised lifting/mounding of soil at base and located near an irrigation box. Visually blocks sightlines.	S	L	L 5	M	2.16	14.66	2.13	14.24	0%	0%
5 to 12	*Fracinus americana* White Ash	SM	between 2 to 3.5m	0.1	Exempt. Remove.	1m	to	1.8m		0.15	Exempt (in that they are under 3.5m high and other than T8 have a diameter <0.1m at 1.4m). T8 has a diameter of 0.13m at 1.4m high. All are stunted and have lacklustre appearance likely due to lack of water and soil nutrient and limited soil volume. All visually block sightlines.	S	L	L 6 to 7	E	1.20	4.52	1.49	6.99	0%	0%
13 and 14	*Fracinus americana* White Ash	SM	between 2 to 3.5m	0.1	Retain and Protect	1m	to	1.8m		0.15	Exempt (in that they are under 3.5m high and have a diameter <0.1m at 1.4m). Both trees are stunted which is likely due to a combination of inadequate soil volume, water (irrigation) and soil nutrients as well as exposed surrounding surfaces (pavers). T13 and 14 are on either side of the bus stop and by nature of their stunted size, visually block sightlines and provide little shade. T13 and 14 are outside the proposed site works area.	S	L	L 6 to 7	E	1.20	4.52	1.49	6.99	0%	0%
15	*Fracinus americana* White Ash	SM	6	0.38	Proposal to Remove.	2	1	3	3	0.4	2 x dead trees either side of T15. T15: Co-dominant form at 1.4m high and poor trunk attachment with visual indication of included bark with adaptive wood rib visible (indicating poor structural attachment).	S - M	L	L 6	WP	4.56	65.33	2.25	15.94	0%	0%

Age Class
ST (Senescent)
OM (Over Mature)
M (Mature)
SM (Semi-Mature)
J (Juvenile)

(Diameter at Breast Height) DBH is used in TPZ calculation.

Prposal to Retain

Proposal to remove (with approval)

Proposal to transplant

Dia. RCB is used in **SRZ** calculation

Crown Density PFC
Dense >90%
Normal 70-90%
Slightly thin'g 60-70%
Thinning 40-60%
SP sparse <40%
PFC = projected foliage cover

SULE
L ong(> 40 Years)
M edium(15-40 Years)
S hort(5-15 Years)
T (Transient < 5)
H (Hazardous/Dead)

LANDSCAPE RATING
S (Significant)
VH (Very High)
H (High)
M (Moderate)
L (Low)
VL (Very Low)
IN (Insignificant)
Ex (Exempt TPO)
T (Threatened S)

Retention	Rating
H - high Priority retain	1 to 3
M - moderate Consider retain	4 to 5
L -low Consider Removal	6
VL - very low Priority Removal	7

Site Location

O Inconspicuous /obscured location

M Moderate location, not obscuring

P Prominent position

HV Highly Visible from street/surrounds

E (Edges) Periphery of site

WP Within Develoment Potential

OB Outside Boundary

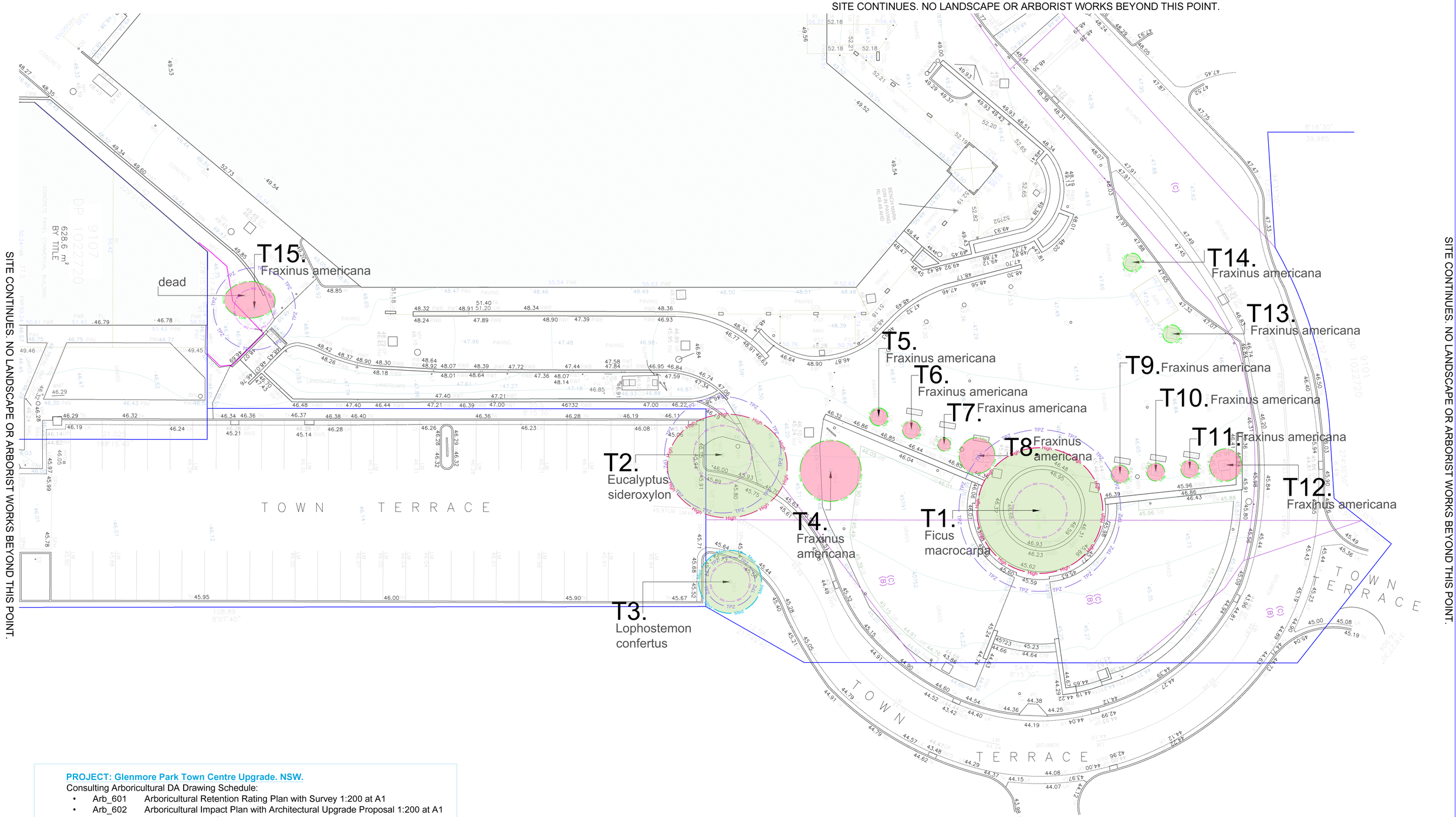
Measured in CAD. Encroachment based on root zone encroached as a % of TPZ. Canopy incursion based on incursion as a % of canopy. Refer arborist report for details.

Tree evaluation Table by: Elke Haege Thorvaldson, Consulting Arborist and Landscape Architect 0410 456 404

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS BEYOND THIS POINT.

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS BEYOND THIS POINT.

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS BEYOND THIS POINT.



PROJECT: Glenmore Park Town Centre Upgrade. NSW.

Consulting Arboricultural DA Drawing Schedule:

- Arb_601 Arboricultural Retention Rating Plan with Survey 1:200 at A1
- Arb_602 Arboricultural Impact Plan with Architectural Upgrade Proposal 1:200 at A1
- Report (A4) with Arborist Data Schedules (A3)

SURVEY USED AS BASE UNDERLAY.
THIS PLAN FORMS PART OF THE ARBORICULTURAL REPORT PACKAGE.

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 The Phoenix Studio 6, Level 1. 1 Moncur Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

Registered Landscape Architect AILA (#001539)

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown must be referred to the Landscape Architect for confirmation. The Contractor must not construct from this drawing unless it marked 'Issue for Construction'. The Contractor acknowledges this drawing may be one of a number of drawings which together document the landscape design and works.

NOT FOR CONSTRUCTION

Issue	Revision Description	Date
B	Development Application	15.10.21
A	Preliminary for Project Team Co-ordination	20.09.21

LEGEND

T1. Tree Name — Tree Reference number (Refer to Arborist Report)

Calculated Tree Protection Zone (TPZ) and Structural Root Zone (SRZ)

as assessed by arborist (refer to arborist report).

- High
- Moderate
- Low

Very Low

Exempt

Proposed removal

Proposed retention

TN MN

elke LANDSCAPE CONSULTING ARCHITECT ARBORIST
0410 456 404
elke@elkeh.com.au

Development Application

Client: Home Consortium

Architect: Buchan

Landscape Architect and consulting arborist: Elke Landscape Architect + Consulting Arborist

Project: Glenmore Park Town Centre Upgrade
Glenmore Park. NSW

Drawing Name: Consulting Arboricultural Tree Retention Rating Plan

This plan forms part of the consulting arboricultural package

Scale: 1: 200 @A1

Scale bar: 0 1 2 4 6 10m

Drawn: EDH

Approved: EDH

Job Number: 2109_b

Drawing Number: Arb_601

Issue: B

A1

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS BEYOND THIS POINT.

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS BEYOND THIS POINT.

SITE CONTINUES. NO LANDSCAPE OR ARBORIST WORKS BEYOND THIS POINT.

DOCK

STAIRS

BUILDING 1
OFFICE SPACE:
2454 m2 (INCLUDING AMENITIES)
SECURE CAR PARKS - 13

RL 48535

EXISTING BUILDING

SHOPFRONT ZONE FOR EXISTING TENANCIES

WALKWAY ZONE

TERRACE DINING PRECINCT

DINING AREA

AIRLOCK ENTRY

RL 48535

STEPS

RAMP

TERRACED LANDSCAPE SEATING

1:100 min

EXISTING CARPARKS

NEW PEDESTRIAN CROSSING

ON GRADE WALKWAY (CONCRETE FINISH)

NEW ACCESSIBLE PARKING BAYS WITH SHARED ZONE

TOWN TERRACE
EXISTING RETAINED ROAD

GLENMORE PARK

LINE OF NEW WORKS

UPGRADE TOWER AS PART OF WORKS

RAMP1.14

EASEMENT EDGE SHOWN IN PURPLE DASH. REFER SITE SURVEY

BUS STATION

BUILDING 2
NEW TENANCY:
250m2
RL 47339

RAMP 1:14

RAMP 1:20

45.80

T15. Fraxinus americana
dead

T14. Fraxinus americana

T13. Fraxinus americana

T5. Fraxinus americana

T6. Fraxinus americana

T9. Fraxinus americana

T10. Fraxinus americana

T7. Fraxinus americana

T11. Fraxinus americana

T8. Fraxinus americana

T12. Fraxinus americana

T2. Eucalyptus sideroxylon

T4. Fraxinus americana

T1. Ficus macrocarpa

T3. Lophostemon confertus

TPZ High Med Low

PROJECT: Glenmore Park Town Centre Upgrade. NSW.
Consulting Arboricultural DA Drawing Schedule:
- Arb_601 Arboricultural Retention Rating Plan with Survey 1:200 at A1
- Arb_602 Arboricultural Impact Plan with Architectural Upgrade Proposal 1:200 at A1
- Report (A4) with Arborist Data Schedules (A3)

PROPOSED ARCHITECTURAL PLAN SHOWN AS BASE UNDERLAY REFER ALSO TO PLAN Arb_601.
FOR PROPOSED LANDSCAPE PROPOSAL REFER TO PLANS: L_100-104 AND I_501.

100 200 300 400 500 600 700 800

elke LANDSCAPE ARCHITECT + CONSULTING ARBORIST. m: 0410 456 404 The Phoenix Studio 6, Level 1. 1 Moncur Street, Woollahra, NSW 2025 elke@elkeh.com.au www.elkeh.com.au

NOT FOR CONSTRUCTION

Issue	Revision Description	Date
B	Development Application	15.10.21
A	Preliminary for Project Team Co-ordination	20.09.21

LEGEND

T1. Tree Name

Tree Reference number

Calculated Tree Protection Zone (TPZ) and Structural Root Zone (SRZ)

Existing Tree recommended for Retention and Protection

Existing Tree proposed to be removed.

Encroachment and % into TPZ from the Proposed works.

Recommended Tree Protection Fencing (to AS 4970-2007)

TN MN

elke LANDSCAPE CONSULTING ARCHITECT ARBORIST
0410 456 404
elke@elkeh.com.au

Development Application

Client: Home Consortium

Architect: Buchan

Landscape Architect and consulting arborist: Elke Landscape Architect + Consulting Arborist

Project: Glenmore Park Town Centre Upgrade
Glenmore Park. NSW

Drawing Name: Consulting Arboricultural Tree Impact Plan

This plan forms part of the consulting arboricultural package

Scale: 1: 200 @A1

Scale bar: 0 1 2 4 6 10m

Drawn: EDH Approved: EDH

Job Number: 2109_b Drawing Number: Arb_602 Issue: B

A1

6 Impact, Discussion and Recommendations

6.1 The retention and protection of five (5) trees is proposed being T1, T2, and T13 and T15.

6.2 Of the trees proposed to be retained and protected, two trees (T1) *Ficus macrophylla* (Moreton Bay Fig) and (T2) *Eucalyptus sideroxylon* (Mugga Ironbark) have been assessed as having a high retention rating and one tree (T3) *Lophostemon confertus* (Brush Box) tree has been assessed as having a medium retention rating.

6.3 The proposed development footprint is outside of the existing garden bed zones of trees T1, T2, and T3 and does not impact upon the garden bed zones of these trees proposed for retention.

6.4 Tree protection fencing is proposed around trees T1 and T2 for the duration of the construction phase including the site set up and earthworks phase. It is understood that the development footprint will be away from T3, T13 and T15, so that they won't likely need tree protection zone fencing. It is however recommended that this be clarified once the demolition plan is being submitted for the construction certificate (CC) phase. Refer to plan *Arb_602* for the location of the proposed Tree Protection Zone (TPZ) fencing and refer to *Chapter 7* below for the specification for the TPZ fencing.

6.5 The removal of ten (10) trees is proposed. These trees are all *Fraxinus americana* (White Ash) trees and fall into the exempt category in that they are under the height and size description of a prescribed tree *(Penrith Development Control Plan 2014, C2, 2.a) iii).* Further, the trees proposed to be removed are exotic species and are of a low retention rating.

6.6 The proposed development opens up opportunity for tree planting. The landscape proposal includes for the establishment of 3 new additional large native trees of local characteristics. The landscape proposal also includes for the establishment of 11 new additional flowering trees, 6 of which are proposed to be deciduous flowering trees to allow for summer shade, and winter sun on the eastern aspect to provide for amenity to the proposed terrace dining precinct. Refer to the *landscape Architectural DA package* including the landscape design approach statement on sheet L_100.

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6.7 The arborist *Table A* (data sheets) tabulates the tree data, calculations and health and structural condition.

6.8 Refer also to the arborist plans *Arb_601 and Arb_602.* within this report.

6.9 Refer to *Chapter 8* below which shows more site and tree photos.

Figure 2 *Contextual photo looking north, with Tree T2, Eucalyptus sideroxylon (Mugga Ironbark) (T2). Proposed for retention. Date of photo 14th September 2021*

Figure 3 *Contextual photo looking east with Tree T2, Ficus macrophylla (Moreton Bay Fig) (T1). Proposed for retention. Date of photo 14th September 2021*

7 Tree Protection Zone Fencing.

7.1 **Install compliant Tree Protection Fencing**: Prior to any construction and as soon as possible in the site set up phase, Tree Protection Zone fencing (TPZ fencing) and TPZ signage is to be installed in the locations determined by the project consulting arborist following DA approval.

7.2 The project consulting arborist is to confirm the locations of the TPZ fencing on the arborist plan: *Arb_602.* TPZ fencing is to protect the retained trees and their necessary soil zone by restricting the construction footprint that may unduly compact, damage, or disturb the tree soil zone and the tree root growing zone of trees.

7.3 In addition, site set up and arborist sign off is recommended to ensure fencing is compliant and for the project arborist to discuss relevant ongoing tree protection and future inspections that may be required during the construction phase.

7.4 **Type of Fence**: Tree or trunk protection fences (TPZF) are to comply with AS *4970-2009* and are recommended to be a minimum **1.8 m high**. This can be achieved with a 1.8 m high **(ATF) or chain link fence with non-penetrable footings. E.g., temporary site or event fencing with plastic or concrete pad footing pads (that do not penetrate the ground**).

Figure 4. Example of tree protection fencing and signage..

7.5 Erect signage on all visible sides of the TPZ fencing and in clear to read text size. For this project use 6 to 8 signs evenly spaced and facing outwards across the two zones of TPZ fencing. TPZ Signage is to state the following:

Tree Protection Zone. Do not move this fence.
Do not store or dispose of materials or park vehicles inside the fenced zone.

Do not enter without prior written approval by the project consulting arborist: 0410 456 404

7.6 A printable A2 sized sheet of the tree protection signage (*example right*) is provided at the end of this report which can be laminated or printed on coelute for use and re-use.

7.7 The site manager/builder is to ensure that all people and contractors on site know **not to enter** inside the tree protection fencing zone, **not to shift** the fence, **not to store** any materials inside the TPZ, and **not to damage, cut, crush, or sever any foliage**, **branches** or tree **roots** (roots over 40mm diameter) regardless if roots or tree parts are within the TPZ or not. Should access into the TPZ fenced zone be required, contact the project consulting arborist prior and obtain written permission. Failure to do so, will result in non-compliance.

7.8 No cutting, shaving, or removing of any tree parts may occur, including tree roots **>40mm**, any trunk, branches, or foliage without the prior written consent of the project arborist.

7.9 Should tree roots >40mm be exposed or uncovered, contact the project arborist for instructions (which may include root protection measures, root severance, tree removal, or other by the project consulting arborist only). The project consulting arborist will advise on recommendations and implications at time of site inspection and make a record of the site visit which will be provided to the certifier and/or client.

8 Site Photos.

All site photos were taken on 14th September 2021 by Elke, consulting arborist during the site assessment.

Figure 5. Photo of T2, Eucalyptus sideroxylon. Photo looking north and taken from the upper east facing terrace.

Figure 6 Photo of T2, Eucalyptus sideroxylon. The photo shows the location of the stormwater inlet pit, and the exposed surface roots, pram ramp and garden bed extent which is proposed to remain with TPZ fencing to protect.

Figure 7. The co-dominant form of T2 and one limb which has broken off.

Figure 8 T2, Eucalyptus sideroxylon. showing condition of tree at the root crown base.

Figure 9. T3, Brush Box tree. Top photo shows the canopy of T3 with T1 (Moreton Bay Fig) in the background. The bottom photo shows the ground conditions around the root crown base of T3.

Figure 10. T4 Fraxinus americana on the left and T1, Moreton Fig on the right.

Figure 11. T1, Moreton Fig in the background with T5,6 and T7 in the foreground. Photo looking north

Figure 12 T1, Moreton Fig in the upper right-hand corner with T13 and T15 either side of bus stop in the background to the left.. Photo looking north

Figure 13. Close up photo of T1, at the root crown base showing buttressing roots and contained garden bed with low stone wall which is proposed to be retained along with the tree.

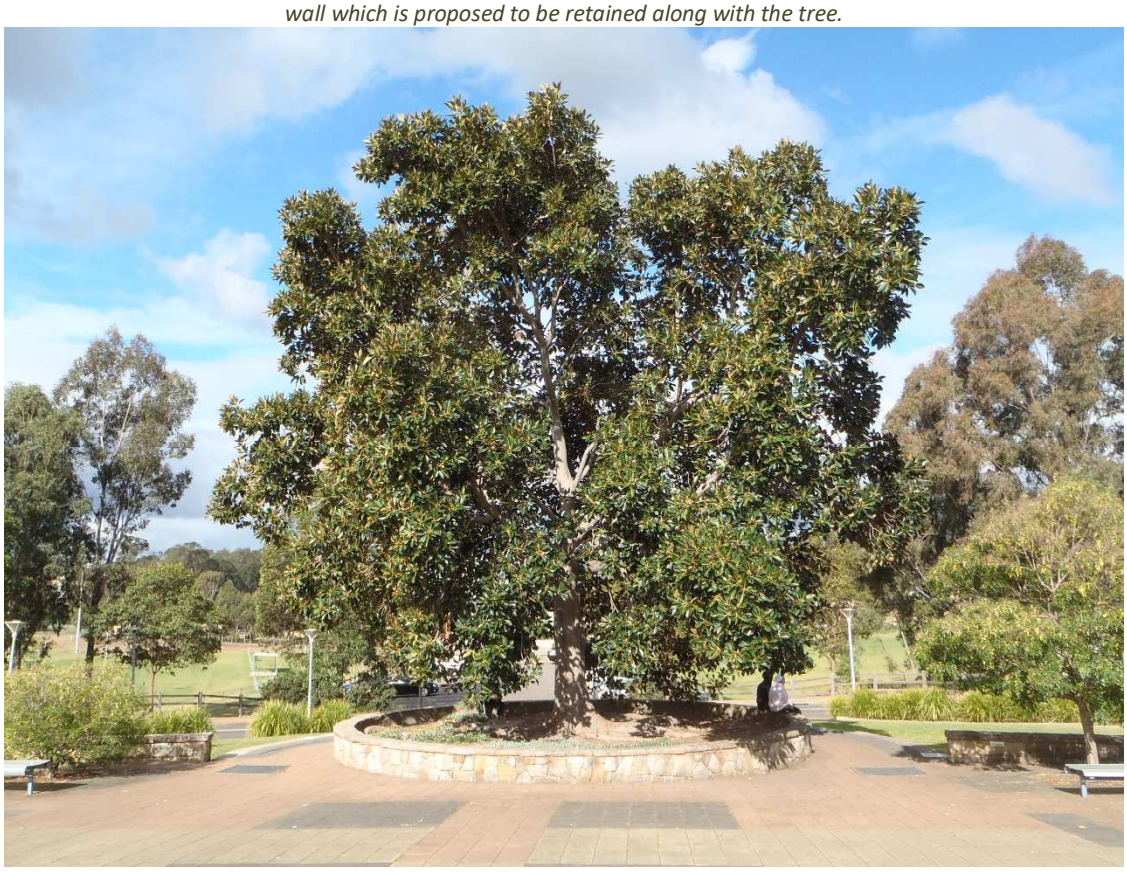

Figure 14 photo of T1 looking east. The photo shows the contained garden bed with low stone wall which is proposed to be retained along with the tree.

Figure 15. Photo of the Fraxinus americana T5 through to T11. These trees are proposed for removal.

Figure 16. trees T10 and T9. The scale of the bench seats and poor sightlines are apparent in this photo

Figure 17. T13, Fraxinus, proposed for retention.

Figure 18 Tree T13 Fraxinus, proposed for retention.

Figure 19 Tree T15 Fraxinus, proposed for retention.

Figure 20. The two images above show T15. Fraxinus americana proposed for removal.

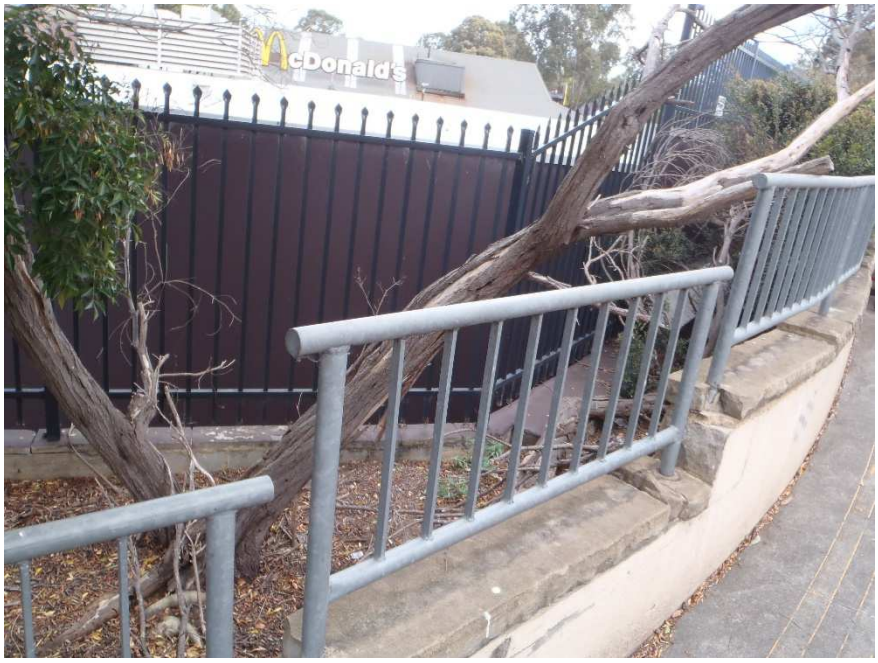

Figure 21 The dead tree adjacent T15

Figure 22 The 2 dead trees adjacent T15

9 Discussion and Conclusion

9.1 The proposed works zone contains two high retention rated trees that are proposed for retention. The proposed new tree planting, provided suitably established will contribute both with higher quality amenity by way of landscape setting, summer shade and local character of the town centre zone, as well as create a higher environmental and landscape values to the dining precinct zones by virtue of planting trees that have the potential to contribute well to the environmental qualities of the site and local neighbourhood.

9.2 The proposed development also provides opportunity for a sustainable and long-lived landscape design approach with trees in deep soil conditions.

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10 References

- *Australian Standard AS4970-2009, Protection of trees on Development Sites. Standards Australia.*
- *Australian Standard AS 4373 – 1996, Pruning of Amenity Trees, Standards Australia.*
- *Australian Standard AS 4454 – 2003, Composts, soil conditioners and mulches.*
- *Barrell, Jeremy, 1996, Pre-development Tree Assessment, SULE Categories and Sub-Categories, Proceedings of the International Conference on Trees and Building Sites (Chicago), International Society of arboriculture, Illinois, USA.*
- *Barrell, J, 2009, Draft for Practical Tree AZ version 9.02 A+NZ, Barrel Tree Consultancy, Bridge House, Ringwood BH24 1EX*
- *Craul, P.J. 1985. A description of urban soils and their desired characteristics, Journal of Arboriculture 11(11):330-339.*
- *Draper and Richards, 2009, Dictionary for Managing Trees in Urban Environments, CSIRO Publishing.*
- *Leake S and Haege E, 2014, Soils for Landscape Development, Selection, Specification and Validation, CSIRO Publishing.*
- *International Society of Arboriculture, 2009, The Landscape Below Ground III, Proceedings for a Third International Workshop on Tree Rood Development in Urban soils, ISA, Champaign, Illinois, USA.*
- *Mattheck C. and Breloer H., 2001, The Body Language of Trees - A handbook for failure analysis – Sixth impression (2001), The Stationery Office, London, U.K. Fig 120, Page 196.*
- *Mattheck C., and Breloer H., 2010, The Body Language of Trees – A Handbook for Failure Analysis – 11th impression, The Stationery Office (TS0), London UK*

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11 Relevant Appendices

Appendix 1: Landscape Significance Rating

Refer to next page. As well this rating takes into consideration the context and relationship of the tree to its surrounds and contribution to the streetscape/site surrounds and character of the site.

Appendix 6: ISA Tree Risk Assessment

Methodology: ISA (International Society of Arboriculture, 2013)[6]. Hazard potential (Risk rating matrix)

Likelihood of Failure and Impact	**Consequences of Failure**			
	Negligible	Minor	Significant	Severe
Very likely	*Low*	*Moderate*	*High*	*Extreme*
Likely	*Low*	*Moderate*	*High*	*High*
Somewhat likely	*Low*	*Low*	*Moderate*	*Moderate*
Unlikely	*Low*	*Low*	*Low*	*Low*

Appendix 2: Safe Useful Life Expectancy

Refer to next page.

The following worksheet template shows the categories for SULE as derived from the attached appendices.

Life expectancy (LE)				Safe Life Expectancy LE				Safe Useful Life Expectancy			Final SULE	SULE Category
Age of tree	Average Lifespan	Lifespan modified by local factors	Life expectancy	LE modified by health	structure	LE modified by location	SLE	expense	Interference	Space for planting		
1	2	3	4	5	6	7	8	9	10	11	12	

**The SULE categories and classifications are subjective and based on the knowledge, experience and expertise of the assessor.*

[6] *http://www.isa-arbor.com/education/onlineresources/basictreeriskassessmentform.aspx*

Sule Categories and Sub-Categories

	1	2	3	4	5
	Long SULE:	**Medium SULE:**	**Short SULE:**	**Remove:**	**Small, Young or regularly clipped:**
	Trees that appeared to be retainable at the time of assessment for more than 40 years with and acceptable level of risk	Trees that appeared to be retainable at the time of assessment for 15 to 40 years with and acceptable level of risk	Trees that appeared to be retainable at the time of assessment for 5 to 15 years with and acceptable level of risk	Trees that should be removed within the next 5 years	Trees that can be reliably transplanted or replaced
A	Structurally sound trees located in positions that can accommodate future growth	Trees that may only live for between 15 and 40 more years	Trees that may only live for between 5 and 15 more years	Dead, dying, supressed or declining trees through disease or inhospitable conditions	Small trees less than 5 metres in height
B	Trees that could be made suitable for retention in the long term by remedial Care	Trees that may live for more than 40 years, but would need to be removed for safety or nuisance reasons	Trees that may live for more than 15 years, but would need to be removed for safety or nuisance reasons	Dangerous trees through instability or recent losss of adjacent trees	Young trees less than 15 years old but over 5 metres in height
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention	Trees that may live for more than 40 years, but should be removed to prevent interference with more suitable individuals or to provide space for new planting	Trees that may live for more than 15 years, but should be removed to prevent interference with more suitable individuals or to provide space for new planting	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form	Trees that have been regularly pruned to arteficially control growth
D		Trees that could be made suitable for retention in the medium term by remedial Care	Trees that require substantial remedial care and are only suitable for retention in the short term	Damaged trees that are clearly not safe to retain	
E				Trees that may live for more than 5 years, but should be removed to prevent interference with more suitable individuals or to provide space for new planting	
F				Trees that may cause damage to existing structures within 5 years	
G				Trees that will become dangerous after removal of other trees for reasons given in 1A-1F	

Ref: Barrell, Jeremy (1996)
Pre-development Tree Assessment
Proceedings of the International Conference on Trees and Building Sites (Chicago)
International Society of arboriculture, Illinois, USA

Appendix 3. Retention Rating

Tree retention priority. Refer to Plan 2.

	Landscape Significance Rating						
SULE	1	2	3	4	5	6	7
Long >40yrs	High Retention Value						
Medium 15-40 years			Moderate Retention Value				
Short 5-15 yrs				Low Retention Value			
Transient <5years				Very Low Retention Value			
Dead or Hazardous							

Reference modified from: Earthscape and Couston, Mark and Howden, Melanie, 2001, Tree Retention Values table, Footprint Green Pty. Ltd., Sydney Australia

Appendix 4a. AS 4970. Development of Trees on Protection Sites:

Tree Protection Zone (TPZ)

The tree protection zone (TPZ) is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable. The TPZ incorporates the structural root zone (SRZ)

Determining the TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH × 12.

TPZ = DBH × 12 where DBH = trunk diameter measured at 1.4 m above ground
Radius is measured from the centre of the stem at ground level.

A TPZ should not be less than 2 m nor greater than 15 m (except where crown protection is required). Clause 3.3 covers variations to the TPZ. The TPZ of palms, other monocots, cycads and tree ferns should not be less than 1 m outside the crown projection.

Structural Root Zone (SRZ)

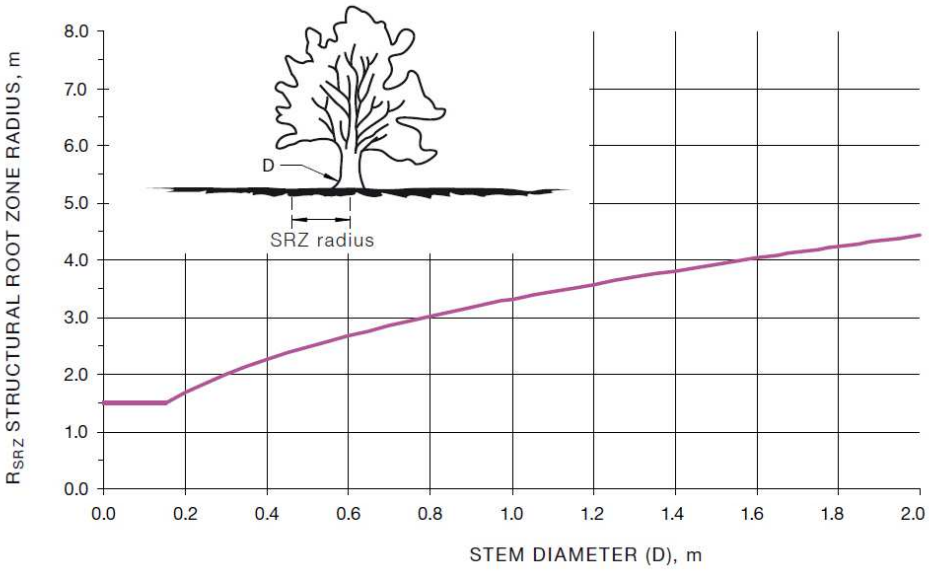
The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

The SRZ only needs to be calculated when major encroachment into a TPZ is proposed.

There are many factors that affect the size of the SRZ (e.g., tree height, crown area, soil type, soil moisture). The SRZ may also be influenced by natural or built structures, such as rocks and footings. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula or Figure 1.

Root investigation may provide more information on the extent of these roots.

SRZ radius = (D × 50)0.42 × 0.64 where D = trunk diameter, in m, measured above the root buttress



The curve can be expressed by the following formula:
$R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

NOTES:

1 R_{SRZ} is the calculated structural root zone radius (SRZ radius).
2 D is the stem diameter measured immediately above root buttress.
3 The R_{SRZ} for trees less than 0.15 m diameter is 1.5 m.
4 The R_{SRZ} formula and graph do not apply to palms, other monocots, cycads and tree ferns.
5 This does not apply to trees with an asymmetrical root plate.

FIGURE 1 STRUCTURAL ROOT ZONE CALCULATION

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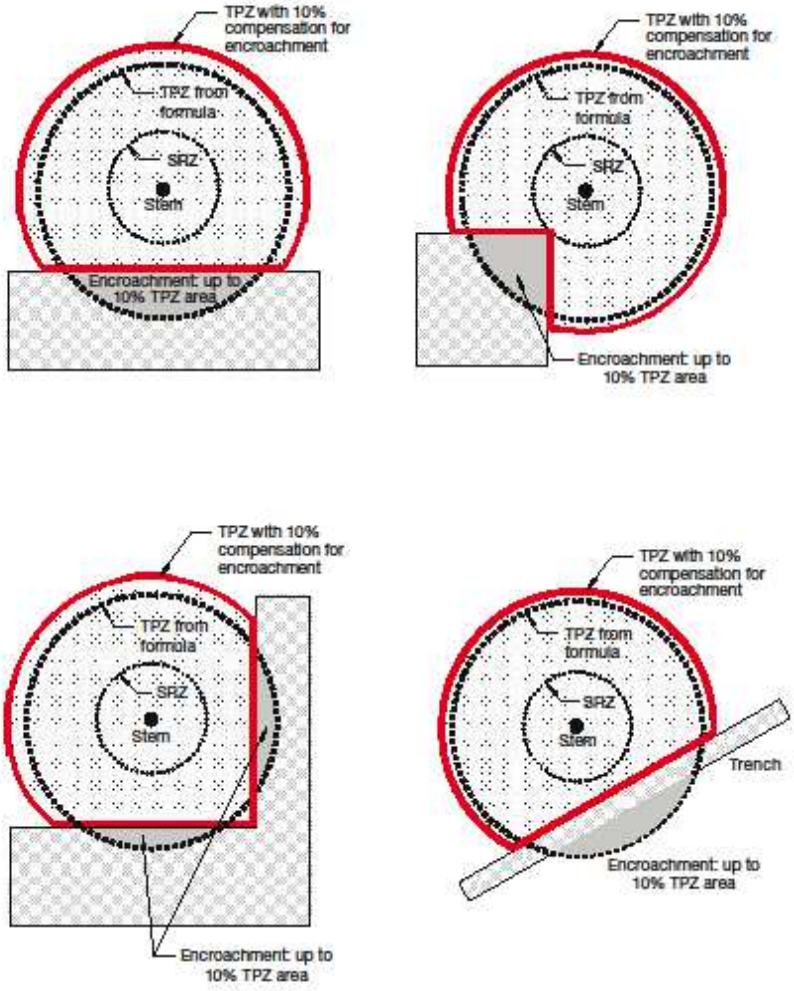
NOTE: The SRZ for trees with trunk diameters less than 0.15 m will be 1.5 m (see Figure).

APPENDIX D

ENCROACHMENT INTO TREE PROTECTION ZONE

(Informative)

Encroachment into the tree protection zone (TPZ) is sometimes unavoidable. Figure D1 provides examples of TPZ encroachment by area, to assist in reducing the impact of such incursions.



NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

FIGURE D1 EXAMPLES OF MINOR ENCROACHMENT INTO TPZ

Appendix 5: Tree Retention Priorities

The following table describes the implications of the Retention Values on site layout and design. Refer to Plan 2: Tree Retention Values for direct correlations to table below.

Appendix 5

	Tree Retention Priorities
Retention Value	Recommended Action
"High"	• These trees are considered worthy of preservation; as such careful consideration, should be given to their retention as a priority. • Proposed site design and placement of buildings and infrastructure should consider the Tree Protection Zones as discussed in the following section to minimise any adverse impact. • In addition to Tree Protection Zones, the extent of the canopy (canopy drip line) should also be considered, particularly in relation to high rise developments. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.
"Moderate"	• The retention of these trees is desirable. • These trees should be retained as part of any proposed development if possible; however, they trees are considered less critical for retention. • If these trees must be removed, replacement planting should be considered in accordance with Council's Tree Replacement Policy to compensate for loss of amenity.
"Low"	• These trees are not considered to worthy of any special measures to ensure their preservation, due to current health, condition or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE. • These trees should not be considered as a constraint to the future development of the site.
"Very Low"	• These trees are considered potentially hazardous or very poor specimens or may be environmental or noxious weeds. • The removal of these trees is therefore recommended regardless of the implications of any proposed development.

Source: Derived from: Earthscape Horticultural Services, December 2011

Appendix 7: Tree Protection Fencing signage

The following page provides an A2 printable TPZ sign that can be laminated or printed on plastic core flute for attaching to the tree protection fencing as recommended.

tpz fence sign